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CONTENTS.

An Asterisk (*) Denotes an Illustrated Article.

SPECIAL OFFICIAL NOTICE—

Bureau of Information, American Gas Institute.... 1385

EDITORIALS—

Briefly Told 1385

Technical Sessions, Fifth Annual Meeting, National Commercial Gas Association—An Opportunity to Secure Valuable Gas Literature—Current Mention.

The Best Policy to Follow to Increase Gas Sales in a Town where both Gas and Electric Companies are under One Management, by Mr. C. N. Stannard.....1387

Increasing Gas Sales to Existing Consumers, by Mr. G. R. Chamberlain 1388

Report of Proceedings, Fourth Annual Meeting, American Gas Institute—Continued from page 1344.....1290

Technical and Mechanical Progress in the Gas Industry During the Past Twelvemonth—Concluded from Page 1344.

Proceedings, Seventeenth Annual Convention of the Pacific Coast Gas Association—Continued from page 1349.....1394

Second Day, Afternoon Session—*Some Notes on Naphthaline Conditions in California, by Mr. Sherwood Grover.

*Reilly's Apparatus for Purifying Tar.....1395

SPECIAL ENGLISH CORRESPONDENCE.....1396

An Early Winter—Popularizing Gas—Gas Light as an Appetizer for Birds.

Meeting Times of the Various Gas Associations.....1397

Recent Patent Issues.....1397

ITEMS OF INTEREST FROM VARIOUS LOCALITIES..... 1398

Personal—The Western Gas Construction Company's Latest Blotting Pad—Betterments at Brockport, N. Y.—Will Greenville (Ky.) Have a Gas Works?—Interest Figures, Gas Supply of New York—Cheaper Gas for Richmond, Ind.—Personals—Queer Fire, Fitchburg, Mass.—Mr. Hotchkiss Succeeds Mr. Welsh—More Personals—Annual Meeting, Fremont, Neb.—Personal—Buffalo Boys and Their Bonfire—Personals—The Wilmington (Del.) Gas Study Club—And Other Items.

Public Lighting Tables 1399

The Market for Gas Securities..... 1400

[SPECIAL OFFICIAL NOTICE.]

Bureau of Information, American Gas Institute.

DETROIT CITY GAS COMPANY,
ENGINEERING DEPARTMENT,
DETROIT, MICH., Nov. 26th, 1909.

To the Members, American Gas Institute: Send questions to be submitted to the Bureau of Information for answer to V. F. Dewey, Chairman, Gas Office Building, Detroit, Mich. The Bureau of Information respectfully solicits your troubles. Yours respectfully,

V. F. DEWEY, Chairman.

BRIEFLY TOLD.

TECHNICAL SESSIONS, FIFTH ANNUAL MEETING, NATIONAL COMMERCIAL GAS ASSOCIATION.—The technical sessions of the Association, which vied with the Show in Madison Square Garden for the attention of the host of gas men who assisted in both sessions and Show, were held in the Concert Hall, of New York's great structure for mammoth affairs. The programme showed seven sessions spread over 4 days, beginning Tuesday afternoon the 14th, and concluding Friday evening the 17th, in a joint meeting with the New York Section of the Illuminating Engineering Society. There were 17 papers and 4 addresses to be considered, in addition to the regular business. When the sessions began the Association had a membership of 477, and at the time of its ending, 491 names had been added, bringing the total well near the 1,000 mark. A truly remarkabfe feature of the meeting of so young an Association was the fact that 487 members registered, bringing with them 397 guests, the majority of the latter being of the fair sex. President Shattuck handled the business portion of the first session with dispatch, and after the election of officers, which was noted in the JOURNAL last week, Mr. J. C. D. Clark presided while the President read his address, which document was received with attentive interest. One of the suggestions it contained was to separate the dual offices of Secretary and Treasurer, which have heretofore been filled by one in the person of Mr. L. S. Bigelow, by taking away the duties of Treasurer on account of the enormous growth of detail work. This suggestion was subsequently indorsed. The President, on resuming the Chair, introduced Mr. E. N. Wrightington, who read his paper on "Street Lighting," which was mainly devoted to the recent public lighting agitation in the city of Boston. The discussion, by Messrs. Macbeth, Keppleman and Owens, seemed to point to the fact that the Company had been remiss in not giving out the information earlier, when it would have been of considerable value to answer some of the rather unfair criticisms of the technical press. Mr. Owens further stated that the unsuccessful attempt of the Company to supplant electric arc lamps on much travelled streets, by means of low pressure gas, had not been accomplished anywhere in either this country or Europe. And that it proved to be a great error. The other paper discussed at this session was read by Mr. G. R. Chamberlain, whose theme was "How to Increase the Sales of Gas to Existing Consumers," and it covered the campaign in his home town of Grand Rapids, Mich. Much that was of interest was brought out in the dialogue between Messrs. Burr, Wing, Stannard, Thompson, Macbeth, Owens, Rogers, Searle and Clabaugh, after which the session adjourned. Later on, in the Hotel Astor, President Shattuck entertained a small but representative body of gas men. It was a decidedly clever function, and the entertainer was at his best.

As noted last week, a somewhat informal meeting was held Tuesday evening, and on Wednesday morning the President had the pleasure of calling the meeting to order with over 200 in attendance. From the well prepared discussion of the previous day it was at once apparent that the work of the Chairman of the Paper Committee, Mr. C. W. Hare, had borne good fruit, and the Association is largely indebted to him for his cleverness in having advance copies in the hands of the members nearly a month prior to the meeting. If we were to judge from any discussion that ensued, the prize paper of the convention was that presented at the opening of this session, by Mr. C. N. Stannard as Editor, assisted by 9 associates, on "The Best Policy to Follow to Increase Gas Sales in a Town Where Both Gas and Electric Companies Are Under One Management." To show the interest that attached to it in a general way it is only to note that the discussion was shared in by Messrs. Calhoun, Huntting, Eavenson, Newman,

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Rogers, Hare, Macbeth, Gibbs, Witherby, Ewing, Blyber, Gardiner, Doherty, Mueller and Owens. This was followed by a report of the Committee on Place of Next Meeting. Boston was selected amidst cheers. "The Future of Gas for Store Lighting," by Mr. R. R. Young, was then taken up, and the discussion that followed, which was notable for its diversity of opinion, was shared in by Messrs. Rushin, Macbeth, Owens, Searle and Blyber. To tell the truth, the part contributed by Mr. Rushin to the dialogue was in many respects equal to any a paper presented before an association. To be sure, the other side of it was as redolent of epigrams as any admirers of the Bernard Shaw school could desire. Mr. A. V. Wainwright then read his paper to the theme of "Promoting Gas Sales in a Small Town." It contained many interesting hints, but the discussion on it was postponed until the following morning, a necessity made plain by the flight of time, which seemed to fly quite rapidly. Surely positive proof that interest was in the air. The sessions of Wednesday were convened by discussing first the Wainwright paper. It was debated by Messrs. McCleod, Brown, Newman and Sherwood. Mr. T. R. Elcock then read his chapters on "Advertising," which brought out a spirited discussion, that was shared in by Messrs. Grey, Eldredge, Eves, Searle and others. Mr. Hanson read Mr. Clabaugh's comments on the subject, and added a few on personal account. The Committee on President's Address reported at this point, and as it recommended the adoption of the several set suggestions made in it, the way to divorcing the offices of Secretary and Treasurer was simplified. The next number on the paper list was that handed in by Mr. S. Tully Wilson, whose clever notes on "The Development of the Use of Gas for Industrial Purposes, Present and Future," scarce called for discussion, in that he choose to lay down the law rather than to take up the matter from a controversial standpoint. The Tully ending of the communication brought the hour for luncheon. The afternoon's assembling was ushered in by the reading of Mr. T. O. Horton's paper on "Combustion." Owing to unavoidable conditions Mr. Horton was unable to attend the session, and the paper was accordingly read by Mr. S. P. Curtis. Mr. Horton's well put together thesis was discussed by Messrs. Wilson, Curtis, Rawson, Ryder, Allen, Gardiner and Rogers. Next came a well written report from the Committee on Standardization, handed in by Chairman J. C. D. Clark, and read by the Secretary. The report was (as it should have been) adopted without ado or dissent. The report by Mr. F. W. Frueauff, Chairman of the Committee on Public Policy, next came in for consideration. Its admirable framing just emphasizes anew the fact that Mr. Frueauff knows how to say much in little. The report was read by Mr. Gardiner. There being three papers on gas engine topics, it was decided to read them in series so that a joint discussion could be had on them. The first was on "The Sale and Maintenance of Gas Engines," by Mr. E. C. Duerr; the second was entitled "General Maintenance and Special Troubles of the Gas Engine," by Mr. R. H. Thomas; and the third was submitted by Mr. W. W. Cummings, on the subject of "Gas Engines in Competition with Central Station and Isolated Steam Plants." Those who joined in the collective discussion were Messrs. Young, Wright, Burke, Gardiner and Rogers. The sitting was brought to an end by Mr. C. W. Savage, who read a paper giving "A Few Practical Points about Water Heaters." Naturally this matter brought out some diversity of opinion, and those who joined in it were Messrs. Hamlin, Aaron, Martin and Philips. This concluded the order for the day. It may have been the very entertaining theater party at the Hippodrome, followed by a most enjoyable after theater supper in the Astor the evening of Thursday, that caused the falling-off in the attendance the opening session of the last day. Second thought, however, leads us to recognize the fact that it was Friday. Yes; that accounted for it—'twas Friday. Not that the attendance was meager, only by comparison. Friday's session was begun in the considering of the paper by Mr. L. F. Blyler, who had for his subject "The Application of Architectural Designs to Gas Fixtures." His plea for better and costlier fixtures was seconded by Messrs. Philler, Wrightington and Hanlon, but Mr. Ewing sounded the key note when he said that the matter of fixtures would adjust itself as soon as the companies were ready and willing to maintain single burners. Then Mr. C. N. Hare introduced Mr. William De Freitas, of the Consolidated Gas Company, who had had direct charge of the piping of the Garden. He received a generous welcome and explained briefly how the piping was done, and stated that some 12,000 feet were used for conveying the lighting currents alone, not including the gas sent on the various booths and stalls. Next in order was Mr. George D. Roper's paper on "The Appliance Manufacturer and the Gas Company." This proved to be a heart-to-heart talk, and he was answered in kind by Messrs. Hare, Kohn, Thompson, Frueauff, Searle, Stannard, Sard and Crane. The concluding paper was read by Mr. J. B. Douglas, whose story had to do with "The Claim Department's Interest in New Business." The feature of which was a number of "Don'ts" that will bear careful perusal, and the discussion by Messrs. Stannard, Rogers, Searle and Clabaugh, brought out a few more. The parting felicitations were proposed by Mr. Clabaugh and his selection of Messrs. Shattuck, McLean, W. J. Clark, C. W. Hare and P. S. Young, had the unanimous approval of all. Friday evening the Chairman of the New York Section of the Illuminating Engineering Society, Mr. E. L. Elliott, outlined briefly the work of the Section, and introduced Mr. H. Thurston Owens, who delivered a well thought lecture, nicely illustrated by slides, on "Street Lighting Fixtures." He aimed to and really did cover the subject, both in this country and Europe, in exceedingly entertaining way, and well deserved the round of applause that burst forth on the conclusion of his work. Next came Mr. E. B. Rowe, who had a descriptive paper on the "New Appliance Show Rooms of the Consolidated Gas Company, of New York." Not much has hitherto been said about this beautiful exhibit, but we imagine, after Mr. Rowe's description, gas men who wander into New York from foreign towns will often find the way to 29 East 21st street, where that sure enough gentleman, Mr. H. B. McLean, holds sway. Take it all-in-all, the meeting and the attendant exhibition were of the highest class. Regarding the latter we make the claim, positively and unreservedly, that the great interior of the Garden, even into the rifts in the cornices, was better lighted solely by gas and in a manner superior to any other occasion that called for excess illumination, whether electric alone, gas alone, or either eked out by both.—O. W. C.

AN OPPORTUNITY TO SECURE VALUABLE GAS LITERATURE.—Mr. Glenn R. Chamberlain, the active Secretary-Treasurer of the Michigan Gas Association, informs us that he finds that the Library files of that Association contain a limited number of bound volumes of the "Proceedings," and also extra single copies of the various papers read at the meetings, and a few of those read at the 1909 meeting. He informs us that should any of our readers desire to secure or obtain copies of those on hand, they should kindly remit to him with their order postage stamps to the value of: Sixteen cents for the complete "Proceedings" of any meeting, bound; and 6 cents for anyone of the single papers—the inclosures should be in the shape of 2-cent stamps. Below is a partial list of those obtainable:

Bound "Proceedings," 11th Annual Meeting (1903), containing, among others, the paper on "Loss of Illuminating Power of Mantles While Burning," by Prof. A. H. White and Mr. M. E. Mueller.

Bound "Proceedings," 12th Annual Meeting (1904), containing, among others: "The Laying of Mains and Services and Recording of Same," by Mr. John Hellen. "A Few Notes on Ammonia," by Mr. F. E. Sheriff. "Care of Benches and Results Therefrom," by Mr. T. J. Whalen. "Advertising as it Concerns a Gas Company," by Mr. Alonzo P. Ewing.

(1904), containing, among others: "Temperature as Applied to the Production of Gas," by Mr. V. F. Dewey. "Retort House Practice in a Small Works," by Mr. Geo. Turner. "The Removal of Naphthaline from Coal Gas" (1st paper), by Messrs. A. H. White and S. Ball.

(1905), containing among others: "Tar Burning in Gas and Electric Plants." "Gas Advertising," by Mr. Glenn R. Chamberlain. "The Removal of Naphthaline from Coal Gas" (2d paper), by Prof. A. H. White and Mr. David N. Cleary.

(1906), containing, among others: "Gas Distribution at Grand Rapids," by Mr. A. F. Traver. "Value of System in the Management of Gas Companies," by Mr. R. Schadellelee. "The Removal of Naphthaline from Coal Gas" (3d paper), by Prof. A. H. White and Mr. Joel M. Barnes.

(1907), containing, among others: "Record of Progress in Fuel Briquette Manufacturing," by Mr. W. S. Blauvelt. "Studies in the Manufacture of Coal Gas," by Prof. A. H. White and Mr. F. Park. "A New Method of Condensing and Scrubbing," by Mr. Wm. Seymour. "Accidents in the Manufacturing Gas Industry," by Mr. Herman Russell. "Ways and Means to Increase Gas Sales," by Mr. E. J. L'Esperance.

(1908), containing, among others: "Labor Saving in Medium Size Gas Plants," by Mr. F. C. Remington. "Destructive Distillation of Coal at Low Temperature," by Prof. A. H. White and Messrs. E. E. Park and Wm. A. Dunkley. "New Business Methods," by Mr. Clark R. Graves. "A Few Thoughts on the Advertising of Public Service Corporations," by Mr. E. St. Elmo Lewis.

Mr. Chamberlain's address is Grand Rapids, Mich.

CURRENT MENTION.—

THE new gasholder (up to retaining 101,000 cubic feet) for the Lincoln (Neb.) Gas and Electric Light Company will be located at the junction of 32d and X streets.

THE Massachusetts Board of Gas and Electric Light Commissioners has assented to the petition under which the franchise and all other properties of the East Boston and Chelsea Gas Light Companies, Boston, Mass., will be owned and operated as a single going concern.

THE Treasurer of the Peoples Gas Company, of Montpelier, Vt., recently forwarded the sum of $438.86 to the city on payment of the 2 per cent. tax imposed on its gross earnings for the past twelvemonth.

The Best Policy to Follow to Increase Gas Sales in a Town where both Gas and Electric Companies are under One Management.

[Prepared by MR. CLARE N. STANNARD, Denver, Col., for the 5th Annual Meeting, National Commercial Gas Association.]

1. What branch of the business would return a better net profit to the company if gas were used for fuel or light or power than if the business were turned to the electric end of the company.

2. What type of business should be given to the electric branch of the company, and the gas solicitors instructed not to solicit for it.

CLARE N. STANNARD, Editor.

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In the days when the gas and electric companies were fighting each other over the entire field of light, heat and power, little attention was given to the question of adaptability, or to whether some classes of business might not better be left to the other fellow. The field was disputed bitterly and each side took all the business it could get. Such keen competition developed some very ingenuous applications of both gas and electricity, but the intense desire to get business usually obscured the question of profit.

When later the two competing companies were combined, the question of profit even remained a secondary consideration for some considerable time, due to honest differences of opinion between the gas trained and the electric trained men. For some time past there has existed a slow-growing conviction that a close study of costs and profits, coupled with the intelligent use of the commercial department to prove or disprove assumptions thus made, would be of invaluable assistance in determining when and where to push gas and when and where to push electricity.

In taking up a study of this kind, of course a great deal is determined by local conditions, and also relative costs of gas and electricity for taking care of certain classes of business, both to the company and to the consumer. In consideration of this question, it is taken for granted that the ultimate object of the company is greatest possible net revenue and a satisfied consumer. There was a time when local conditions controlled absolutely the shape of both gas and electric load curves, and when a consumer was not a satisfied one, unless he was allowed to name his desires and have them at once filled to order.

Personal solicitation and progressive, intelligent advertising can be made to produce wonderful changes in local conditions and in the needs of satisfied consumers, and has witnessed the wonderful growth of all kinds of long-hour business and the large number of complete installations which gas and electric companies are asked to plan for their consumers. Thus it is becoming more and more a question of net profits which decides whether the company wishes to encourage certain classes of business to be operated by gas or electricity.

Gas Division.—The three largest branches in which a decision must be made as to the advisability of pushing gas or electricity are light, heat and power. We will consider them in the order named, assuming gas at $1 per 1,000 feet and electricity at 10 cents per kilowatt.

In considering gas versus electricity for lighting we should first call to mind their individual merits. In spite of high efficiency lamps, gas is still cheaper than electricity for illuminating purposes; but electricity is more convenient. However, every company has on its books, or among its prospects, a large number of people who do not wish to pay for the extra convenience, and these can be very profitably and satisfactorily taken care of by gas illumination.

Among the classes of business that receive more satisfactory service from gas than electricity are the smaller saloons, groceries, pawnshops, etc. As a rule the proprietors of these places look more to low expenses and low receipts rather than reasonable expense and high receipts. In such sections of a city gas as an illuminant is to be found almost universally.

As to whether gas or electricity should be pushed by the solicitor must be left to his discretion, always remembering that, while a consumer may be influenced to install expensive light, it may not be possible to influence him to pay what he considers exorbitant monthly bills, and if he is not properly taken care of when he gets his first bill he may be disgusted and turn to gasoline or some other illuminant than gas or electricity. This, of course, would mean a loss of all revenue to the company.

A thing further to be considered is the fact that all illumination done by gas very often lessens the peak load on the electric and, of course, the investment necessary at the station to take care of the peak load. The peak of the gas load in most cities is not such a serious problem as that of the electric, and there are many times when more gas illumination would help keep down the electric peak, making unnecessary the investment of additional capital to carry the peak lighting load. These considerations are the ones which mean that the gas lighting should be pushed in such classes of business, regardless of whether the profit of the company is greater on gas or electric lighting. In cities where gas for domestic fuel has been pushed for a period of years, there will usually be found a large number of residences of the poorer class where gas is used for fuel purposes only and where no electric service can be had. As many new business men can testify, little effort is needed to get a large amount of lighting in this field without the slightest increase in the company's investment. As a piece of additional business, but more particularly as an entering wedge to secure later on a complete gas lighting installation, a gas jet on a range is an excellent proposition. Even in the better class of houses, where electric lighting is favored, the consumer should be convinced of the advantage of both installations, and thus open a wide field for the use of gas as well as electricity. It often happens that an isolated plant secures part or all the lighting and power business used in the city block where it is located. Such business can be held by a central station company by reason of the cheapness of gas for lighting, fuel and power, and an energetic campaign for gas in the field has often recovered all this outside revenue from the isolated plant, and thus forces it to ask for central station service.

In the poorer resident sections of the city in many localities gas is being used for fuel or light, in which there are no electric lines. Often the mistake is made of running electric lines through such a district because some few consumers desire it. The large majority of them are better satisfied with gas because it is cheaper than electricity.

Paralleling the gas mains by electric lines in such districts can usually be figured as a large capital expense on which little consumption will be secured and which could be better taken care of by the existing gas system.

Old buildings which are not wired or piped, it is undoubtedly better to pipe them for gas, because the classes of tenants who would use an old building are usually partial to gas on account of its cheapness. Replacing old-style gas fixtures and appliances with modern ones under some adequate system of maintenance will always result in increased revenue to the company and satisfaction to the consumer.

Fuel gas is the field which spells "Unlimited Opportunity" for the company. Along with the improvements that have been made and are being made in gas appliances nearly every operation requiring heat, in both domestic and industrial fuel, can be done with gas efficiently and economically. The fact that in one large company considerably more than ½ the gas output is used for fuel purposes shows the possibilities of this branch of the business.

Gas is the domestic fuel of to-day, and is coming to be used very largely in all industrial cooking. Through gas ranges, water heaters, grates and laundry stoves it very nearly has the domestic fuel field to itself. The industrial end has uses too numerous to mention. There are very few classes of business in which heat cannot be used in some form. The cheapness and adaptability of gas heat are causing it almost to make its own way as soon as it is introduced in any branch of business.

Certain branches of the power business are open to the gas engine. The actual cost in dollars and cents to this class of users has been of prime importance, and ofttimes by taking such business on the gas end the interest of the consumer can best be served. More often still, by the adoption of gas for power, gasoline engine competition can be checked.

Electric Division.—Judging from the brightness of the streets of our principal cities, electricity has been selected to fill the field of display lighting. Both from the standpoint of the company and the public this is good business. It is long-hour business, and thus suits the company, because it fills up the valley in the evening load curve, and it appeals to the business man and the public in a truly marvelous way. The most widely-known and talked-about business portion of any city is always its "Great White Way." When this class of business includes the window lighting and sign lighttng, and the

whole is obtained on a dusk to midnight or all-night-flat-rate contract, it becomes the most desirable kind of business.

In a certain large city the gross yearly revenue from this class of business is many thousands of dollars. This company receives a fair average price for this class of business, which makes it by far the greatest producer of net profits on either the gas or electric end.

The city street lighting is another class of long-hour, flat-rate business that works well on the electric end. While the rate paid for this service is often so low that the net profit does not amount to any more than it would on the gas end, the effect of this lighting has a great deal to do with furthering our campaign for long-hour electric lighting.

The field of interior business lighting belongs purely to gas, because of the good lighting which can be done at small expense.

However, one of the most wonderful results of modern business-getting on the electric end has been the conversion of many business men from gas to electric lighting. In almost every case this means that a consumer who was begrudging every cent of his light bill because he considered lighting a necessary evil, has become a believer in lavish lighting, both indoors and outdoors, purely as a good business investment. That psychological fact is the real, all-important reason why we combination plant men should believe in electricity for business lighting. Additional long hour business at average prices is what makes the net profits climb.

In many cities gasoline lighting competition is coming to be quite a problem. In places where a low operating cost is of prime importance, the most efficient system of gas lighting will most often hold the business. However, it is a remarkable fact that in many cases where gasoline plants have been installed for some time a properly planned tungsten installation appeals to the prospective consumer as will nothing else. His standard of illumination seems to have been permanently raised, but he does not want to have anything more to do with gas. In fact, general, all-around experience with tungsten lamps forces the conclusion that business men are not worried about the size of their lighting bills if they get the light.

Furnishing heat by means of electricity costs the consumer very nearly ten times as much as it would to produce the same heating effect with gas. This enormous handicap in price effectually bars electricity, except for small applications where convenience is the deciding factor; for ironing, etc., where the application of the heat is more convenient and direct than with gas.

On the power end, the superior adaptability of electric power has more to do with the decision between the gas and electricity than has the question of profit to the company. Both gas and electricity for power purposes are usually sold at a very low figure, because power business comes off the peak. For this reason, average figures of profit do not apply, but special figures indicate that the per cent. of profit on power is about the same, regardless of whether gas or electricity is used. However, the case with which individual electric motors may be applied to every need makes the growth of power business much more rapid where electricity is used than is the case with gas. Electricity has always been regarded as a product which carries fixed charges which were very high in comparison with its generation cost, and it, therefore, was not adopted for use on short-hour or peak business.

When central station new business or commercial departments were first organized, it was argued by the booster for the electric end that all the lighting business that could be obtained for the electric end should be put on that end. Their idea was that, although the initial installations might not always run as high in profit as gas, the inherent advantages of electricity would give greater chances for obtaining additional consumption than if gas were installed. At that time, such a course meant the spending of thousands of dollars for educational work, because the general public regarded electricity in any form a commodity which was adaptable and convenient, but very expensive.

In order to obtain the desired results is was necessary to teach hard-headed business men that if they could make their places of business more beautiful and attractive to the eye of the prospective consumer they could not only sell goods when their competitors could not, but could sell more than their competitors.

As soon as the start had been made on this educational campaign, the business man was taught that keeping his windows and outside display lighting on until midnight every night in the year would burn his name and his business into the eye and the mind of the public, even though his place was closed. The result has been an enormous increase in long-hour business.

In some companies there exists a very strong opinion that short-hour business lighting should be thrown to the gas end, on account of the high fixed charges needed to carry on the electric end. Short-hour lighting business usually comes on the peak of the load on both the gas and electric end, so that the ratio between the investment needed on these two ends will determine to a great extent where the company should handle the business.

The demand charge on installation of carbon filament lamps is considerably higher than it would be if the same amount of light were furnished with gas mantles, assuming it is 2½ times as much for the electric as it is for the gas. If carbon filament lamps are replaced by tungsten lamps, we will have as much light as before, but the demand or investment charge will be as low as that on the gas installation. In view of this removal of the high fixed charges which have always worked against this end of the business, and the great possibilities which any business place offers for additional long-hour lighting, it would seem electricity offers a better chance for increased profits in lighting business than does gas.

This paper does not lay down any specific set of rules for determining which classes of business would best be handled on the gas and which on the electric ends. However, an attempt has been made to show where and why each end should be pushed in order to produce the largest possible net revenue in any given city.

From this paper our conclusion is that domestic and industrial heat is almost exclusively a field which belongs to gas. Ranges, water heaters, grates and room heaters in the residence districts and the thousand-and-one applications of fuel gas in the business and manufacturing districts, make a combination almost limitless in possibilities.

From the arguments advanced in this paper, the electric end appears to have a right to carry all lighting, except in cases where other factors must be subordinated to the item of operating cost and, in the poorer resident sections where there are gas mains, but no electric lines. This means that the better class of residences and business houses should use electricity for both interior lighting and all wind w and display lighting, sad irons, toasters and other appliances where convenience is of more importance than operating costs.

Power business is virtually electric business, and the slight difference in cost is more than made up through the consideration of its completeness and flexibility.

It is our belief that the securing of additional gas business from present gas consumers and additional electric business from present electric consumers is by far the best field from which we can secure a large amount of profitable revenue, bearing a greater proportion of net revenue to the gross revenue secured than from any other field. This is true, due to the fact that the company has usually already made a sufficient investment to care not only for the consumers' present, but additional needs. Therefore, this additional business secured is of a highly profitable nature, and this important branch of the business should not be overlooked by the commercial managers in directing the efforts of their representatives.

Increasing Gas Sales to Existing Consumers.

[Prepared by MR. GLENN R. CHAMBERLAIN, Grand Rapids, Mich., for the 5th Annual Meeting, National Commercial Gas Association.]

We will assume, in discussing this subject, that by existing consumer is meant anyone who is connected to our system of gas mains by means of a service connection, the idea being increases to the business on our present lines of main. Business is secured on old mains from 4 sources:

Those having service connections, but using gas for neither lighting nor fuel.

Those using gas for lighting but not for fuel.

Those using gas for fuel but not for lighting.

Those using gas for both lighting and fuel, but who can use other appliances or make a larger use of present appliances.

With the idea in mind—about 1 year ago, November 1st—of making our present investment in mains, services and other equipment yield us still more business, we started a 12 months' campaign which we are only just completing, and while we have made many new business canvasses with this idea in mind, we have never before followed out one so completely and systematically. And so I see no better way of giving our ideas of how to increase the sales of gas to existing consumers than to outline briefly the plan followed by us during the past year. I think this will show that, although the sales of gas in any city may be considered already very high, there will still always be

plenty of room for further increases, and that a fairly large new business force can be profitably employed for an indefinite period. Of course, an axiom to be taken into account at this stage of a company's business is that only intelligent, systematic and untiring effort on the part of every member of the force will win satisfactory gas sales on old territory. No slipshod, happy go-lucky, give-away-everything-free methods will do it, and at the same time leave a good record of clean profits to the credit of the new business secured.

I have heard or read somewhere in gas mythology of "saturated" towns; but few of us can realize what a really "saturated" town would look like on the company's books. I believe that no gas company need feel pessimistic about its future increases if it does not get impatient because all of its business does not come to it in one or two years, for large sales per capita are not a result of mushroom growth. Getting business from existing consumers of gas means largely that they must be patiently and painstakingly educated in its four most important features: Adaptability, convenience, reliability and cheapness; and, further, a customer cannot be educated by merely selling him an appliance and never calling on him to find out whether it and the other appliances in which he is using gas are doing all they should do for him. It is an old and almost worn-out expression—worn out in the saying more than in the doing—"You must give your customers service," and in more particulars, too, than just sending a solicitor occasionally to see if he can mesmerize him into buying another appliance.

We use as representatives preferably graduates from the shop force—trouble men or fitters—and they are expected to personally make all adjustments of an ordinary nature that they may run across in the course of their work of canvassing or soliciting. Our experience is that, while such men may not be much as salesmen to start with, they will soon sell more appliances and gas that will stay sold and will remain with the department longer than the brilliant salesman who is nothing but a salesman. He is more steady and contented, and is not afraid to do a little manual work if the occasion requires it.

We use the return post card system for checking up the work of the shop "trouble" men, each month tabulating the results of the work for the perusal of the "trouble" men themselves. This helps greatly to increase the efficiency of the men and improves the consumer's service. During the past 3 months the results of this work show:

No. of postals mailed out..... 4,515
No. of postals returned ... . 2,040 or 45 per cent.

Of the postals returned:

No. not satisfactory to consumer..... 256 or 12½ per cent.
No. satisfactory to consumer, 1st call.. 1,784 or 87½ "

The percentage of postals returned *not* satisfactory shows the need and value of the system. This system also provides that the second complaint automatically comes to the attention of the superintendent as well as the shop foreman, who directs that a special man, expert in the particular trouble, be sent to make the adjustment. The third complaint, whenever there is one, is brought to the attention of the General Manager. This close attention to consumers' troubles we know helps very materially in securing increased gas sales in old territory. Our prearranged plan for covering old territory carefully and systematically was carried out as per the following schedule:

Dec. 1st to April 1st.—A complete canvass of the city, covering every house in it, primarily for the purpose of good service, by adjusting all appliances that were out of order, and incidentally to sell what appliances could be sold and to line up all prospects of every nature preliminary to an active new business campaign.

April 1st to May 1st.—Work on closing housepiping prospects.

May 1st to June 1st.—Gas range prospects and continuation of housepiping work.

June 1st to Sept. 1st.—Devoted to gas ranges and water heaters.

Sept. 1st to Oct. 1st.—Industrial fuel campaign and special house heating campaign.

Oct. 1st to Dec. 1st.—Domestic and commercial lighting and continuation of special house heating campaign.

Ordinarily the period from December 1st to spring is a rather dull one, and, unless something systematic is planned for the representatives, their work is inclined to be haphazard and nothing definite accomplished. This period we devoted to good service work and noting prospects, our idea being at the end of the campaign every appliance in every house on our lines of main would be in satisfactory working order; and this was accomplished by giving each of our eleven residence men a territory which he covered in the time prescribed. The work of these was looked after by an inspector.

One feature of this work, which was a pleasing disappointment to us, was the number of orders secured by the representatives while doing the good service work. Before we began the work the boys felt rather gloomy over the prospect of doing it, as they felt there was no hope of keeping up the regular sale of appliances. Their sales, however, during this period were as great as when at other times they had worked here-and-there over their territory following up odd prospects. There seems to be a feeling on the part of the customer for the representative who drops in unexpectedly and gratuitously adjusts appliances that, as long as an appliance is needed by them sometime in the future, they are glad to give him the order then as a mark of appreciation of the work he has done for them. Some customers do not know when their appliances are out of order, although they realize it after they have been properly adjusted, and it does not occur to others to call up the company to have their appliances adjusted, for there is a feeling that they will receive one of those big "plumbers' bills" of which they have heard so much; and it is not strange that there should be a kindly feeling for the representative who knows his business and who, in a gentlemanly, workmanlike and unassuming way, adjusts these trouble for them without charge.

All prospects of any nature were noted on a general canvass card, and from this card they were transferred according to their class to other cards, which were filed for future reference in geographical order. The form of canvass record slip used by us is given below:

Call No. ..... Time.....
Tenant ..... No..... ..... St.
Owner ....Address.....

Prospects:	*Report:*
Service	Did you light and inspect all range and other fuel appliance burners?.. .....
Meter	
Range	Did you light and inspect all Welsbach burners?..... .....
Now using: Wood	
Coal	Note:.....
Hot Plate	
Old Range	Are all appliances now working O. K.?..... .....
Water Heater	Note:.....
Heating Stove	
Laundry Stove	
Gas Grate	Report if they have Gas Grate ..... Is it O. K.?.....
Kitchen Heater	" " " " Water Heater..... Circ ..... Inst .....
Illum. Heater	
Table Lamp	" " Water Heater is without vent pipe..... .....
Dining Room Dome	
No. 71 Welsbach	Is Gas Range used in winter? ..... If not, why?..... .....
Reflex Light	
Nursery Burner	Report kind of fuel used for house heating: Coke... .....
Heater conn. Bath R.	Hard Coal... ..... Soft Coal .....
" " Bed R.	Dealer of whom purchased... ....
Conceal-o Cover	
222 10M. 10-'09 S & M	Date, ... 190... Signed,..... ..... Rep'r.

Our general canvass card required the minimum of clerical work or the part of our representatives, and was not intended to report at all what the customer was using, but rather reported what he was not using that he could or should be induced to use. While the data secured from this canvass makes a good record of conditions for a year or so, we intend, after completing the year's programme, December 1st, to discard the old information and start anew on another canvass, as it is our feeling that a new record each year is infinitely more valuable in canvassing prospects than one which is even 2 years old, as the sales of appliances by plumbers and dealers which do not come to the attention of the gas company change conditions, as well as changes of residence and removals, so that no permanent record can be kept that is trustworthy and of any great value. The information secured in the way of prospects for future work of soliciting well repaid us for the time and expense of the canvass, and we feel that the work done by the men in adjusting appliances and otherwise perfecting the customer's service cost us practically nothing, though it reduced the work and expense of our complaint department and helped our gas sales. At the daily morning meetings a report of calls and orders was taken for the previous day, and a discussion and explanation of troubles encountered, with demonstrations of the working parts of all appliances, were features that helped the boys greatly in becoming efficient in the appliances they were adjusting and selling. We secured a record of all people using hard coal and utilized this list in helping to dispose of 50 per cent. more coke than was sold the previous year. We also secured a complete list of all

water heaters being used in the city which did not have proper flue connections.

The prospects were taken up in their order, according to the schedule, and letters and literature which had previously been gotten in readiness were mailed promptly. Lists of the prospects, arranged according to street and number, were given the representatives for their use in soliciting. The representatives confined their work to the lists, and were not allowed to follow up stray calls for odd appliances, these stray calls being taken care of throughout the city by one special man. To show the efficiency of this method let me mention that our canvass showed 2,031 old houses on our lines of main that had not been piped, and we were enabled to secure orders for 435, or approximately 22 per cent. This does not include those piped by plumbers, of which there were many, houses on new main extensions, or new houses piped on old mains. We see to it that every house being built is piped, and have been doing so for a number of years. We started 8 or 9 years ago to get the old houses piped for gas, with the result that during that time we have piped 8,300, leaving the prospects we now have to close very stubborn ones, and the 22 per cent. closed this year we feel was very efficient work.

Our industrial fuel campaign was carried out by putting every member of the department, with the exception of the commercial lighting representatives, on industrial fuel work for the month of September. We made a thorough canvass of every business place of every nature in the city, these business places being classified and routed in the office in advance from lists of our industries, compiled by the Board of Trade and the "City Directory." The work was assigned to the representatives by classes: For instance, one man called on all barbers and butchers, another on dentists and doctors, another on restaurants and hotels, etc.

During October and November, which at this writing we have not covered, we will work on lighting and house heating, and feel sure of excellent results from specializing in this work during these months. We have planned to spend practically all of the month of October in calling on those residences where electric lighting is used. There will also be some hang-over house piping prospects that can be closed at this time of the year. The auxiliary house heating campaign will be a campaign for fall and spring heating particularly, and for this purpose we are using a special gas furnace, steam radiators using gas fuel, kitchen heaters, etc.

I have not attempted to go into the details of the year's work, and this paper is already longer than I intended it should be. Space will not permit of reproducing forms and letters used in the campaign, but I will close with a sample of one of a number of gas range letters made use of by us. Other information, letters and forms will be gladly furnished by the writer to any one who may be interested in going further into the work carried out by us.

GRAND RAPIDS (MICH.) GAS LIGHT COMPANY.

We have learned that you are one of the very few who have not yet been converted to the use of gas for cooking.

Twenty thousand families in Grand Rapids, and this is nearly all of them, cook with gas. There are three reasons for this:

It is the cleanest fuel known.
It saves time and labor, reducing kitchen drudgery.
It costs less than any other kind of fuel.

Strike a match—turn a valve—and your fire is ready. Think what this means in time and labor saved. Contrast it with the hard work and fuss necessary in cooking with a wood or coal range.

In baking, the oven is ready in 5 or 6 minutes. Turning a valve, the simplest thing in the world, gives just the right heat to bake evenly and thoroughly.

It's a great satisfaction to know that with a gas range you can always prepare a meal on short notice, when necessary; that you can do it without soiling your dress or hands.

Gas costs less than other fuels, because you don't have to keep the fire going when it isn't needed. In every city where gas is obtainable it is used in preference to all other fuels. What better proof of its economy than its widespread use for cooking?

The only way to enjoy these benefits, however, is to have a gas range installed. Investigate. We will be pleased to explain any particulars you may be doubtful about. We carry a complete line: Cabinet, elevated oven—no stooping to look into the oven—and the ordinary type. Our prices are right, cash or payments. We also instruct you in the use of the gas range to insure greatest economy.

Remember, too, our interest does not end with the purchase of the range. You are a gas consumer. We cannot afford to have you dissatisfied this year or next. Once installed, allowing, of course, for the natural wear, we keep your range in perfect adjustment. If it does'nt seem right, let us know, and we will adjust it without charge.

Call, write or 'phone us for information. Prompt attention given to all inquiries. Yours very truly,

GRAND RAPIDS GAS LIGHT COMPANY,
GLENN R. CHAMBERLAIN, Secretary.

[CONTINUED FROM PAGE 1344.]

REPORT OF PROCEEDINGS, FOURTH ANNUAL MEETING, AMERICAN GAS INSTITUTE.

HELD IN THE HALL OF ELKS, DETROIT, MICH., OCTOBER 20, 21 AND 22, 1909.

FIRST DAY—MORNING SESSION.

TECHNICAL AND MECHANICAL PROGRESS IN THE GAS INDUSTRY DURING THE PAST TWELVEMONTH.—*Concluded.*

Illuminating Engineering.—During the year illuminating engineering has strengthened its claim to the title of one of the applied sciences and a distinct profession, the importance of which to the gas industry is coming to be recognized by most gas companies. The American Society of Illuminating Engineers is now a large and active organization.

One of our largest gas companies has retained a Bureau of Illuminating Engineering as consulting and designing illuminating engineers for designing and redesigning its globes, reflectors, etc., in accordance with the best knowledge of this subject from a physiological and aesthetic standpoint, and most companies are giving more attention to the scientific illumination of interiors than was ever done.

Technical Education in Gas Engineering.—Year-by-year better public facilities for learning gas engineering are made available. Several colleges in this country now have courses bearing especially on this subject, including the Universities of Michigan, Wisconsin and Illinois. In England the Livesey Professorship of Gas Engineering, at the University of Leeds, has recently been endowed, in the sum of £10,000 sterling, by the gas industry of Great Britain, as a memorial to the late Sir George Livesey. This University already maintained a department of fuel and gas engineering, and a number of public lectures have been delivered there on this subject, as well as in Edinburgh, Glasgow, London, etc. Courses in gas engineering are maintained at technical schools in Carlsruhe, Cologne, and several other European cities.

High Pressure Distribution.—The past year has added its increment to the growth of high pressure transmission and distribution, and there is now hardly a gas company of any considerable size that does not employ it to a greater or less extent. This country was the pioneer, and still leads all others, in the use of this system, and in its refinements, but European cities are rapidly falling into line. Many of the compressors and regulators used in England in connection with high pressure work come from this country, but some very fine machines for pumping gas have recently been produced there.

During the past year there has been a tendency toward conservatism in the application of high pressure to low pressure distribution, and the consequent reduction of the percentage of the gas that is subjected to very high pressures. This, however, does not refer to the transmission of gas between town and cities. In Great Britain one company at least is automatically regulating its gas pumping plant by means of a pressure pipe direct from the center of distribution. At the next meeting of the Illinois Gas Association, which is affiliated with this Institute, a paper will be presented on the improvements of the past year in house pressure regulators employed in high pressure distribution, with the view of making them more dependable in their action, it having been ascertained that the mercury seal with which they are usually provided is not always safe. It was at the last meeting of the Illinois Association also that the valuable results were given of recent extensive experiments to determine "The effects of compression and transmission on the candle power and heat units of gas."

The transmission of gas at high pressure through long cross country mains, from town-to-town, is increasing year-by-year, both here and abroad. In Germany 344 villages are now thus supplied with gas.

Pyrometry.—Now that high temperature carbonization has come into greater vogue, resulting from the discovery that most money is made by keeping the heats as high as possible, short of injuring the setting, pyrometry has risen in importance. A good and simple

pyrometer is a desideratum as a means of enabling the retort house operator to sail as close to the wind as possible in this particular. Several makes are on the market and are being used to a considerable extent, the Fery spiral radiation pyrometer being one of the latest and best developments. A new electric resistance pyrometer was also put on the market a few months ago in this country, and is said to be meeting with much favor, as is also the Wanner radiation pyrometer.

Methane Hydrogen Plants.—These plants have come further into favor during the past year, several of them now being in operation in England as an adjunct to coal gas works, especially in small cities. They make gas out of tar, coke and benzol, and the method of introducing and permanently gasifying the tar is very ingenious and successful. It is likely that this process will come into still further use as a means of profitably disposing of tar and coke. One million feet of methane hydrogen gas takes from the market about 5 tons of tar and 20 tons of coke. At Utrecht a very simple gas making plant is in successful operation using a mixture of ⅔ gas oil tar and ⅓ water gas tar.

Utilization of Tar.—The low price of tar has revived progress in means for burning it economically. A French patent was taken out early this year for heating and atomizing tar to increase its efficiency as a fuel. Three papers on the use of tar as a bench fuel were presented at the meeting of the French Society of Gas Engineers last spring, and one at the meeting of the Italian Gas Society. At the Lea Bridge gas works in England there is in operation a patent cyclone separator for dehydrating water gas tar by centrifugal action. A similar device is in use in Brooklyn, N. Y., a 3-horse power motor driving a revolving bowl at the rate of 6,000 r.p.m., handling 1 barrel of tar per hour.

The use of tar for laying dust on roads, and for so constructing roads as to make them dustless, is increasing rapidly, both in this country and in Europe. Experience is gradually showing road builders and public authorities how the tar should be applied, and progress would be still more rapid if they would accept the knowledge gained by the experience of others instead of trying to work out the problems for themselves. The tendency is toward the use of heavier material as a binder for the upper courses of the stone and surface material, which gives more permanent results than surface application only. One large tar concern in this country reports an increase this year over last, in the quantity of tar used for roadway purposes, of 125 per cent., and it estimates that, for the year 1909 there will be tar treated about 1,000 miles of roadway, 15 feet wide. The Roads' Improvement Association of England report that last year nearly 1,500 miles of England roads, averaging 20 feet wide, were treated with tar. A tar broom, connected by hose to the hot tar in a portable boiler, has been recently brought out for this work.

The use of water gas and coal gas tar as a binder for briquettes is increasing, coal tar being considered the better for general use. In France, from 15 to 40 per cent. of the fuel now used by railroad locomotives is in the form of briquettes. Probably the best statement of the present status of the briquetting business is to be found in the magazine "Fuel," of August 17, 1909. Individual makers of briquettes have improved their product during the past year, and briquettes made from bituminous coal and coal tar pitch now stand handling fully as well as anthracite. Briquettes are also now being successfully made of coke breeze.

Ammonia Extraction.—A by-product coke oven concern in Europe (which is also beginning operations in this country) brought out a "direct sulphate process" for the extraction of ammonia from by-product gas and its manufacture into sulphate. The gas as made is passed in direct contact with the acid. The system is said to be successful with by-product coke oven gas. Whether it could be successfully adapted to ordinary retort gas works remains to be seen. An English firm has also brought out a "centrifugal" washer for the extraction of ammonia in the form of ammoniacal liquor. Another has apparatus in operation so efficient that one man in charge is able to make 10 tons of dry sulphate per 24 hours.

Sulphur Purification.—Experiments were made in Germany within the past year or so with the view of finding some means for cheaply removing CS_2 from illuminating gas by washing it in certain oils and chemicals; but while some success was secured in the laboratory, the process was deemed too expensive for adoption on a working scale. Wood charcoal has also recently been experimented with for the removal of this impurity with partial success. In Oregon the old, abandoned method of reheating purified gas, thus converting the CS_2 into H_2S, and then removing the latter in the usual way, has recently been revived; but as the added expense incident to the nearly total extraction of the sulphur thus effected is there about 1 cent per 1,000 feet, it is not likely that the method will be very widely adopted, especially in view of the prevailing tendency to relax the sulphur restrictions heretofore imposed upon gas companies. In this connection it is also pointed out that gas produced in vertical retorts contains about 40 per cent. less fixed sulphur than does gas from horizontal retorts.

A patent for an inclined purifier was taken out last December in France, claimed to save labor, and an automatic safety device was brought out in England that prevents the turning of gas into a purifying box unless the oxide discharge doors are all tightly closed. A vertical purifying box, recently put into use in Germany, was also described during the year, for which the claim is made that it saves space and labor. During the past year there has been a revival of interest in the problem of purification by ammonia, and several experimenters are working along this line, with encouraging prospects of final success.

Coke Chute.—That form of coke chute brought out a few years ago, in which the hot coke falls from the mouths of the retorts into bins or pockets in or under the charging floor in front of the retorts, and is there quenched by sprays of water from fixed perforated piping, and allowed to remain until dry and then dropped out by opening the door below, has come into further and extensive use during the past year.

Bunsen Burners.—A Simmance-Abady pressure gauge, capable of measuring to the 10-thousandth part of an inch of water, has recently been devised to help in the improvement of the design of Bunsen burners.

An ingenious inventor has recently produced a Bunsen burner, the tube of which contains a vertical spiral wire that oscillates rapidly from the upward motion of the gas and air, thus mixing the mixture still more intimately and so securing higher efficiency.

The Meker-Bunsen burner, although really brought out a few years ago in France, has only during the past 12 months become prominently known through the superiority of the line of industrial gas furnaces that have since been gotten out for utilizing its principle. It is so made that the percentage of air drawn in and mixed with the gas is much nearer the theoretical proportion for complete combustion than is secured in the ordinary Bunsen, thus saving gas and heat and securing higher temperature. An English manufacturer of gas appliances challenges the claim of absolute novelty for the Meker burner, but admits the newness of its design.

During the past year or so a blowpipe has been brought out in which the air and gas are mixed in proper proportions, regardless of the quantity or shape of flame desired, by rotating two valves in unison, one governing the air and the other the gas supply.

Gas Water Heaters.—Gas is being used more and more, and with increasing efficiency, for the heating of water for a multitude of purposes, and it is impossible for this report to enumerate the devices that are being developed for such uses.

After several years of experimenting, there was put into use, last spring in England, a successful water-circulating hot plate, made for placing on the top of almost any make of gas range, by means of which water is heated with the waste heat from the gas used for cooking. New types of automatic gas water heaters, in which the opening of a hot water faucet at any place on the hot water piping system connected with the heater opens the gas valve and allows the gas to flow so long as the water runs, have been brought out during the year, and there have also been improvements made upon existing types. One of them is said to have an efficiency of 94 per cent. Water heaters of this class for domestic use have become thoroughly practicable, dependable and economical. A new French gas water circulator, for heating rooms, is said to have an efficiency of 80 per cent. An Eastern concern has brought out a portable, 8-pound bath water heater that heats the water by being partially immersed in it while the gas is burning.

International Candle.—One of the important technical advancements of the past year or two is the effort that has been made toward the adoption by all civilized countries of a standard unit of light, to be maintained jointly by the national standardizing laboratories of the United States, France and Great Britain, such unit to be called the "International candle" (or some other suitable name), and to be employed in all photometric determinations, gas and electric included. Although all gas and electric organizations throughout the world are desirous of the establishment of such unit for universal adoption, the difficulty of agreeing upon a satisfactory unit is, of course, great. The latest developments of this movement are set forth

in the report of the committee on this subject at this meeting of the Institute.

Photometry.—Aside from the efforts that have been made for the adoption of an international unit of candle power, no notable progress in photometry has been made during the year. Studies in this subject were reported last October by Carl Hering, to the British Engineering Society, and the National Physical Laboratory of England presented further evidence of the reliability of the 10-candle pentane lamp as a primary standard of candle power. At the meeting of the German Association of Gas and Water Engineers last summer, Dr. Bunte recommended that photometric tests be dispensed with everywhere, as they had been in Berlin. Flicker photometry has been declared by the Physical Technical Institute of Charlottenburg to possess no advantages over the ordinary methods. Dr. Kruss, of Hamburg, described last spring a new form of integrating photometer.

Calorific Test.—The increasing tendency during the past 12 months toward the substitution of the calorific for the photometric test for gas, both in this country and in Europe, can properly be considered an advance step in the technical progress of our industry.

The number of companies that are required to furnish gas of a specific heating power is increasing, and the next step should, and doubtless will be, the removal of existing requirements as to illuminating power. This is also foreshadowed by the prevailing tendency toward a lower candle power requirement, especially in Europe, and in the actual removal of all candle power requirements by our State Commission in this country in specifying the quality of gas to be supplied in that State.

Gas Ranges.—There has been a general betterment of detail construction and appearance in gas ranges during the past year, particularly in this country. Closer inspection is being given ranges by both manufacturers and purchasers. There has been an increase in the sale of cabinet and elevated oven types of ranges. The use of enameled oven linings is increasing, and the tendency year-by-year is toward simplicity of construction, interchangeable parts and a minimum of bolts and screws. One concern in England has brought out a range without a single screw in its body, and it has been taken entirely apart and put together by one man in 17½ minutes. Another English concern has applied the principle of regeneration to the ovens of domestic ranges, preheating all the air for combustion and ventilation by passing it up through spaces surrounding the ovens and so effecting a saving, it is claimed, of 25 per cent. in the gas consumption.

Corrosion of Iron.—Much study has been given this subject during the past year, and much progress made toward an understanding of it, although much still remains to be learned about it. Mr. Cranfield, in a paper read last May before the Yorkshire Junior Gas Association, and Mr. Harper, in a paper read before the Illinois Gas Association last March, have contributed especially valuable discussions on this subject, including information as to the best measures thus far discovered for preventing the corrosion of iron, either underground or overground, from all causes, including electrolysis.

Reversing Condensers.—A well known constructing company has recently installed the first "reversing condenser" in this country. Either of two condensers may be placed first. In case of stoppage of the cooler one by naphthaline, the flow of gas may be immediately reversed, turning the hot gas through it. The condensers are so arranged that the tar is extracted between them, irrespective of which may be first.

Meters.—The oil dipping of meter diaphragms has been more generally adopted with good results, and improved methods of introducing the oil have been evolved.

Meter provers and complaint meters have been improved.

Promising experiments have been made during the past few months, looking to the devising of a means for accurately and quickly testing consumers' meters *in situ*.

At least one large gas company has recently put into operation in its meter shop a complete and detailed piece price wage schedule.

The dictum has recently gone forth from Manchester, England, that consumers' meters should be tested for correctness of indices as well as of measuring chambers.

An American inventor has just bronght out a simple device for attachment to ordinary consumers' meters, for indicating and measuring the passage through them of extremely minute quantities of gas. This will be useful for detecting very small leaks in house piping, etc.

A greatly improved lock for prepayment meter cash boxes has been brought out, and also a "thief-proof" cash box. A coin-changing attachment for prepayment meters has also been invented.

The use of the rotary station meter seems to be increasing.

A station meter, said to be practicable, has just been brought out that works on the very interesting principle of adding electrically a known quantity of heat to the gas and determining the quantity of gas flowing by its rise in temperature. This meter may come in good play in measuring high pressure gas.

Bench Furnaces.—The Parsy bench furnace, invented in 1906, is said to be rapidly coming into successful use in Europe. It is suitable for either large or small works where there is no cellar, everything being above ground, and is said to be practically as economical as the most complicated and expensive furnaces. Parsy has more recently brought out a novel form of gas producer for his furnaces.

A concern in England is also building and introducing a furnace in which the producer gases are taken up flues in the side walls of the producer, instead of through nostrils in the arch, the secondary air being also taken up in the same way, resulting, it is claimed, in a 20 per cent. increase in the duty of the retorts. In this country, bench furnaces, in which a portion of the flue gases is brought back under the grate bars, are being improved and more generally adopted.

Gasholder Construction.—A 3-lift gasholder was recently erected by beginning at the top and working downwards, the crown and upper sheets being lifted by jacks and otherwise as the construction of the lower sheets proceeded, this being the second holder that has been built in this fashion.

The spiral-guided holder seems to be "holding its own," as there are now some 300 in use. A 1,000,000-foot holder of this sort was erected at Montreal a year ago, and one of the spiral-guided holders erected in England during the past year has a capacity of 3½ million feet. In Germany recently several holders with "Intze" tanks have been constructed, in which the holder tank stands over a masonry tank of smaller dimensions. Oil tanks are now occasionally constructed inside of holder tanks, especially those of relief holders. The largest gasholder in Continental Europe has just been finished at Hamburg, with a capacity of 7,060,000 cubic feet.

Distance Lighting (Local).—At least 3 systems for the distance lighting of gas in homes, factories, churches, etc., by means of the electric spark, have been brought out in Europe during the past year. A foreign concern making a pneumatic pushbutton device for lighting and extinguishing gas burners has recently begun making the plungers of steatite, which greatly reduces the unfortunate tendency to stick and cause trouble. There have also been some other improvements of a minor character in this system of distance lighting, but further improvement is greatly needed. The so-called "Norwich switch" has come into considerable use in England, and inventors are still chasing the *ignis fatuus* of that desideratum of our business, a thoroughly satisfactory self-lighting mantle, with some claimed progress as time goes by.

Gas Engines.—The increasing use of producer gas engines has led manufacturers to give more attention, with promising results, to the effect of high compression in the ordinary type of gas engine. The use of larger engines for producer and blast furnace gases is increasing, particularly in this country. Last August 628 gas engines, of 1,000-horse power or over, were said to be in use, some of them running as large as 6,000-horse power, and one or two are now being built of 8,000-horse power capacity. The opinion has been expressed that such large engines are mechanically, rather than thermodynamically, deficient; but internal combustion engines are in better favor to-day than ever before. The city of Philadelphia already has a gas engine, high pressure, water pumping plant for fire protection, and has recently decided to duplicate it in another part of the city, using ten 300-horse power gas engines, all to use "city gas."

A Washington paper recently reported that the United States Steel Corporation, and also a large New England concern owning a big line of cotton mills, have decided to substitute gas engines for steam engines in all plants. An article in "Cassier's Magazine," for September, says that "Practical experience has demonstrated that a large gas power plant can be worked with the same immunity from breakdowns as a steam plant, and at about one-half the operating cost." The gas turbine has not yet materialized, although several inventors and scientists are at work upon it.

Charging and Discharging Machinery.—No noteworthy improvements have been reported in these machines during the past year, but minor improvements are being constantly made, and charging and drawing machinery is coming into more extended use each year. This is especially true in the case of small works, machines being now frequently used where for the greater part of the year as little as 1 ton of coal per hour is handled. The De Brouwer charger has

been recently adapted to very small works, and an entirely new manual power machine for charging and discharging has been brought out within the past year in France. A new hydraulic coke pusher has also been put on the market in England within the year. One concern has improved its manual charger by making it much easier to handle, and its power charger so that the chute can be quickly lifted at any moment, irrespective of the position of the carriage. The Fiddes-Aldridge charging and discharging machine has been adapted to serve retorts 5 tiers high, and is so efficient that through retorts 21 feet long, and carrying 900-pound charges, can be discharged and refilled in 30 seconds.

Gas Fixtures.—A large Chicago fixture concern has recently been devoting especial attention to the improvement and making of "straight" gas fixtures; and by making the fittings larger and stronger, and building machinery for subjecting all fixtures to severe air pressure tests, and especially by designing gas fixtures in new and better styles, they have done much good work that merits the support and encouragement of the gas companies. In the designing of ornamental gas fixtures we are being excelled by our English cousins.

Incandescent Lighting Experiments.—During the past year or so experiments were made by Arthur Forshaw tending to show that CO is a better constituent of a gas for incandescent lighting than is H. By Dr. Herbert E. Ives, whose colorimeter indicates that incandescent gas lighting is the best for matching colors. By M. Jean Meunier on the combustion of gas without flame; and by M. Sainte Claire Deville on the relation between the heat of combustion of a gas and its incandescent illuminating power.

Last winter there were published the results of careful experiments made at Carlsruhe to determine the relation between the heating value of a gas and its incandescent illuminating value.

Chemical Matters.—The University of Illinois has recently issued a valuable monograph on the subject of the formation of CO in gas producers.

An improved gas burette is described in the *Gas World*, December 26, 1898. The issue of March 13, 1909, describes a direct method of estimating N in gas; that dated May 22, 1909, describes recent work upon the oil "indene," which is found in gas and tar, and which affects the behavior of gas when treated for naphthaline, and during the past year it was discovered that gas meter water contains Prussic acid. (*Gas World*, March 27, 1909.)

During the year, Halifax, England, decided to install at its gas works a plant for making yellow prussiate.

Experiments have been made that show that at a temperature of about 1,200° C., C and H unite to form methane. (*Gas World*, December 5, 1908.)

A well-known firm in this country recently placed upon the market a new apparatus for the rapid and accurate analysis of gas.

"*Coalite.*"—During the past year English gas journals have abounded in references, not always complimentary or sympathetic, to the exploitation that has been going on in England, since 1907, but particularly during the past 12 months, of the proposed new fuel "coalite," which is claimed to be an improved coke, suitable particularly for grates, that lights readily, burns brightly and without smoke, and gives out more heat than coal. Its manufacture is described, in the patent covering it, as "A process for the partial destructive distillation of coal at a low temperature, which is arrested at the stage when illuminating gas ceases to be evolved, in retorts 4 to 6 inches in diameter." Vertical iron retorts are used. Last Spring a works for the manufacture of coalite at the rate of 75 tons per day was started into operation at Plymouth, and similar plants have been operated for some time at 2 or 3 other places; but the business can hardly yet be regarded as out of the experimental stage, and its final commercial success is still quite problematical.

"*Coalexld.*"—About 18 months ago Mr. Jowett, Lancashire, England, patented a means for making an improved coke, which he called "coalexld." It is made simply by applying to each ton of coal carbonized in the ordinary way about 1¼ pounds of a preparation composed principally of chlorate of potash, chlorate of soda and saltpeter. The new fuel seems to have made considerable progress during the past year, and its popularity and manufacture are apparently increasing, notwithstanding our natural incredulity as to the merits of the scheme.

Gasoline Lighting.—Innumerable "systems" for incandescent lighting with gasoline gas are on the market, and in some towns do a small percentage of business in stores, billiard rooms, etc.; but as a whole this percentage does not seem to be increasing. In England the use of "petrol air gas" for these same purposes, and particularly for the lighting of country places, seems to be somewhat on the increase, although its cost is considerably more than that of "town gas."

Odds and Ends.—A new dip-pipe has recently been brought out in England, for which many points of superiority are claimed. At the meeting of the Irish Association of Gas Managers last fall a new automatic hydraulic seal was also described.

An improved drip-pot for street mains, essentially a short length of the same sized pipe as the main, but cast with a very deep sag or pocket on the underside, was described last June.

Coke conveyors have been more generally introduced, particularly in smaller works than heretofore. At Dortmund, Germany, the hot coke is conveyed on a belt made of woven wire.

Early this year a German engineering company issued an "album" of 350 pages, and over 700 illustrations, describing the latest and best novelties in gas works apparatus.

A new coke "cutter" has been brought out in England, said to cut the coke absolutely uniform in size, is adjustable to various sizes, and produces not more than 5 to 6 per cent. of breeze.

A new method and device for automatically weighing coal is described in the *Gas World*, May 22, 1909.

An improved method of determining the sulphur content of spent oxide is described in the AMERICAN GAS LIGHT JOURNAL, April 6, 1909.

Further study has been given to the possibility of casting, instead of moulding, fireclay retorts, and some progress toward the solution of this problem has been made.

A new electrically driven and electrically governed exhauster has recently been brought out in England. Some exhauster makers in this country have redesigned their machines, making them more suitable for higher pressures.

The use of reinforced concrete for holder tanks is increasing. Among others so constructed recently was one 150 feet in diameter at Davenport, England, and one 136 feet in diameter at Turin, Italy.

A fluted concrete lamp post for gas street lighting is being tried out in Washington, D. C.

Considerable improvement in the manufacture of oil gas has been made in California, particularly in the direction of the reduction of the percentage of H, and the better utilization of the lampblack produced.

Much new knowledge on the subject of the removal of naphthaline was contained in a paper by Mr. G. F. Twigg, of Derby, England, before the last meeting of the Midland Junior Gas Association. The use of naphthaline washers, using solvent oils, is extending.

The German Gas and Water Association recently erected and put into operation an instructional and experimental gas works at Carlsruhe. During the past year it has been self-supporting and has done much useful work in the way of testing gas coals, etc.

Improved gas leak detectors and gas leak indicators have been brought out during the year for determining the percentage of gas in a mixture of gas and air, and for not only detecting the existence of small leaks in piping, etc., but for also measuring the exact quantity of gas leaking, however minute.

During the past year the use of lead wool, or shredded lead, for making joints in gas mains, including those used under high pressure, has about doubled. It is said to make a very strong and tight joint, although there is no saving in labor. Lead wire has also been experimented with for this purpose, with very promising results.

Last year nearly 25,000,000 gallons of creosote oil (made from coal tar) was marketed in the United States for preserving timber. In 1904 the quantity was only about 3,500,000 gallons. The Northern Pacific Railroad now creosotes nearly every tie that it lays.

An improvement is said to have been made during the past 12 months in the process of manufacturing "blaugas," resulting in the saving of losses that heretofore occurred in its manufacture and use.

A certain gas company in this country, in order to overcome trouble from water in its mains, has recently arranged to dry its gas by compressing it under 40 to 50 pounds pressure before it enters the holders, the water in which is covered with crude oil.

An invention has recently been brought out in England for compressing gas with water.

An experiment, apparently successful so far, is being conducted in the Isle of Wight in lighting railroad coaches by means of ordinary town gas.

Hydrogen seems to be superseding illuminating gas for the filling of balloons. There was less coal gas used in Europe for this purpose last year than the year before.

A combined gas cooker and circulator was brought out recently in England for utilizing the waste heats of the cooking, and an inexpensive and portable combination cooker and water heater for small consumers was also brought out in Buenos Ayres.

Within the past 12 months additional evidence has been added to the already overwhelming mass of testimony as to the wholesomeness of gas lighting from a hygienic point of view.

The practice of buying coal on heat unit specifications and test is increasing.

The use of seamless steel tube mains is increasing and services are being connected to them under high pressure, by expanding the pipe after it enters the main, thus in a sense riveting the service to the main.

The Societe Technique de l'Industrie du Gaz en France has offered a series of large cash prizes for improvement in apparatus for making or using gas, incandescent burners, automatic distance kindlers, domestic uses of gas, appliances for using coke, producers for using gas works coke, etc.

At Worcester, Mass., a retort house was recently erected with a stack of benches at each side of the house and machines between to push out the coke and put in the coal at one stroke.

A well known manufacturer of pressure gauges has recently developed a differential recording pressure gauge for use in connection with Venturi meters in making a continuous record of the volume of gas flowing through a main.

APPENDIX.—1. Books Published During the Past Year, in Any Language, on Technical Subjects Pertaining to Gas Industry.[1]

In the English Language.

"Catechism of Central Station Gas Engineering in the United States."

"Internal Combustion Engines." W. M. Hogle.

"The Gas Engine." Forrest R. Jones.

"Gas Engine Theory and Design." A. C. Mehrtens.

"Petrol Air Gas." Henry O'Connor.

"The Gas Engine." Cecil P. Poole.

"Suction Gas Plants." Alfred C. Smith.

"Practical Testing of Gas and Gas Meters." C. H. Stone.

"Modern Power Gas Producer Practice and Applications." H. Allen.

"Illustrated Technical Dictionary." Edited by Alfred Schlomann, and a number of co laborers.

"Self-Instruction for Students in Gas Supply." (Section III.)

"Calorimetry of Producer Gas." J. F. Simmance.

"The Internal Combustion Engine." H. E. Wimperis.

"Audel's Gas Engine Manual."

"The Chemistry of Gas Manufacture," Vol. II. W. J. A. Butterfield.

"Internal Combustion Engines." R. C. Carpenter and H. Diederichs.

"Gasholder and Tank at Sutton Gas Works." F. S. Cripps.

"The American Practice of Gas Piping and Gas Lighting in Buildings." W. P. Gerhard.

"The Gas Engine." F. R. Hutton.

"Gas Power." F. E. Junge.

"Gas and Oil Engines and Gas Producers." L. S. Marks and S. S. Wyer.

"The Chemistry of Gas Manufacture." H. M. Royle. (2d Ed.)

"The Gas Engine Manual." W. A. Tookey.

"Gas Works Year Book." Allen & Co., London.

"Handbook of American Gas Engineering Practice." M. N. Latta (English reprint, 1908).

"Town Gas and its Uses for the Production of Light, Heat and Motive Power." W. H. Y. Webber.

"Fire-Resistive Properties of Various Materials." Richard L. Humphrey.

"Briquetting Tests at the United States Fuel Testing Plant, Norfolk, Va." Charles L. Wright.

"Explosive Mine Gases and Dusts." Rollin Thomas Chamberlin.

"The Smokeless Combustion of Coal in Boiler Plants." D. T. Randall and H. W. Weeks.

"Report of the United States Fuel Testing Plant, at St. Louis, Mo." Joseph A. Holmes.

"Binders for Coal Briquettes." James E. Mills.

"Results of Purchasing Coal Under Government Specifications." Dwight T. Randall.

"General Review of Modern Gas Works Machinery, 1909." The Berlin-Anhaltische Machinenbau Actien Gesellschaft.

"Mine Sampling and Chemical Analyses of Coals." J. H. Burrows.

"Washing and Coking Tests of Coal." A. W. Belden, G. R. Delamater and J. W. Groves.

"Significance of Drafts in Steam Boiler Practice." W. T. Ray and Henry Kreisinger.

In the German Language.

"Directory of the Gas and Water Industry." Eisenschmidt and Schulze.

"Ammonia and its Combinations." J. Grosmann.

"Architects' and Builders' Handbook." Kroener, Leipzig.

"The Gas Pipe Layer and Gas Appliances Installant." Kuckuk.

"Illumination in the Past and Present." H. Hilger.

"The Economical Significance of Gas and Electric Works in Germany." Leiner, Leipzig.

"The Gas Producers and Firing with Gas." Jaeneke.

"The Gas Engine." R. Schoettler.

"Coke Works and Tar Products of Gas Coals." S. Knapp.

"Independent Chimneys." (Refers to Gas Works' Chimneys.) Frederich Waldau.

"The Chemical Industry." Gustav Mueller and Fritz Bennigson.

"Transactions of the Institution of Gas Engineers."

"Year Book and Calendar for the Coal Trade and Interested Industries." O. Polster.

"Contributions to the Chemistry of the So-called 'Dry Distillation' of Gas Coals." Dr. A. Bauer.

"Small Motors." (Internal Combustion Engines, up to 100-horse power.)

"Fundamentals of University Chemistry." Wilh. Ostwald.

"Concerning Distillation of Peat, and Conversion of Peat into Cash." S. Jabs.

"Pipe Lines." Published by the Association for High Pressure Lines.

"Determining the Equivalency of Varicolored Light Sources, by Considering the Brightness of the Flame, Visibility and Flicker Photometry."

In the French Language.

"Treatise of the Theory and Practice of Gas Manufacture, and its Various Applications. E. Borias.

"Proceedings of the 35th Annual Meeting, Technical Association of the Gas Industry in France."

"Production and Application of the Lean Gases."

In the Dutch and Italian Languages.

"Handbook of the Duties and for the Guidance of Gasfitters." Kleyneberg, Harlem.

"Official Technical and Commercial Directory of the Gas, Electric, Water and Telephone Business in Italy."

"Joly's Technical Information and Directory for 1909."

Chapter II. of this section of the Appendix comprises a "Classified List of Subjects of All Papers on Technical Matters before the Gas Associations of the World since October, 1908." In this 119 different headings are given.

Chapter III. is a "Classified List of Subjects of United States Patents Pertaining to the Gas Industry Issued During the Year Ended September, 1909." The listing numbers 184 subjects.

Chapter IV. is a "Classified List of English Patents Pertaining to the Gas Industry, Described in the *Journal of Gas Lighting*, from Oct. 1, 1908, to Sept. 14, 1909." This enumerates 361 patents.

In addition the paper *per se* carries an "Index to Subjects," for ready reference, which much simplified the study of the paper as a whole by those inclined to take part in the discussion.

(To be Continued.)

1. Compiled by Mr. Frederic Egner.

[Continued from Page 1349.]

PROCEEDINGS, SEVENTEENTH ANNUAL CONVENTION OF THE PACIFIC COAST GAS ASSOCIATION.

Held in San Francisco, Cal., Sept. 21, 22 and 23.

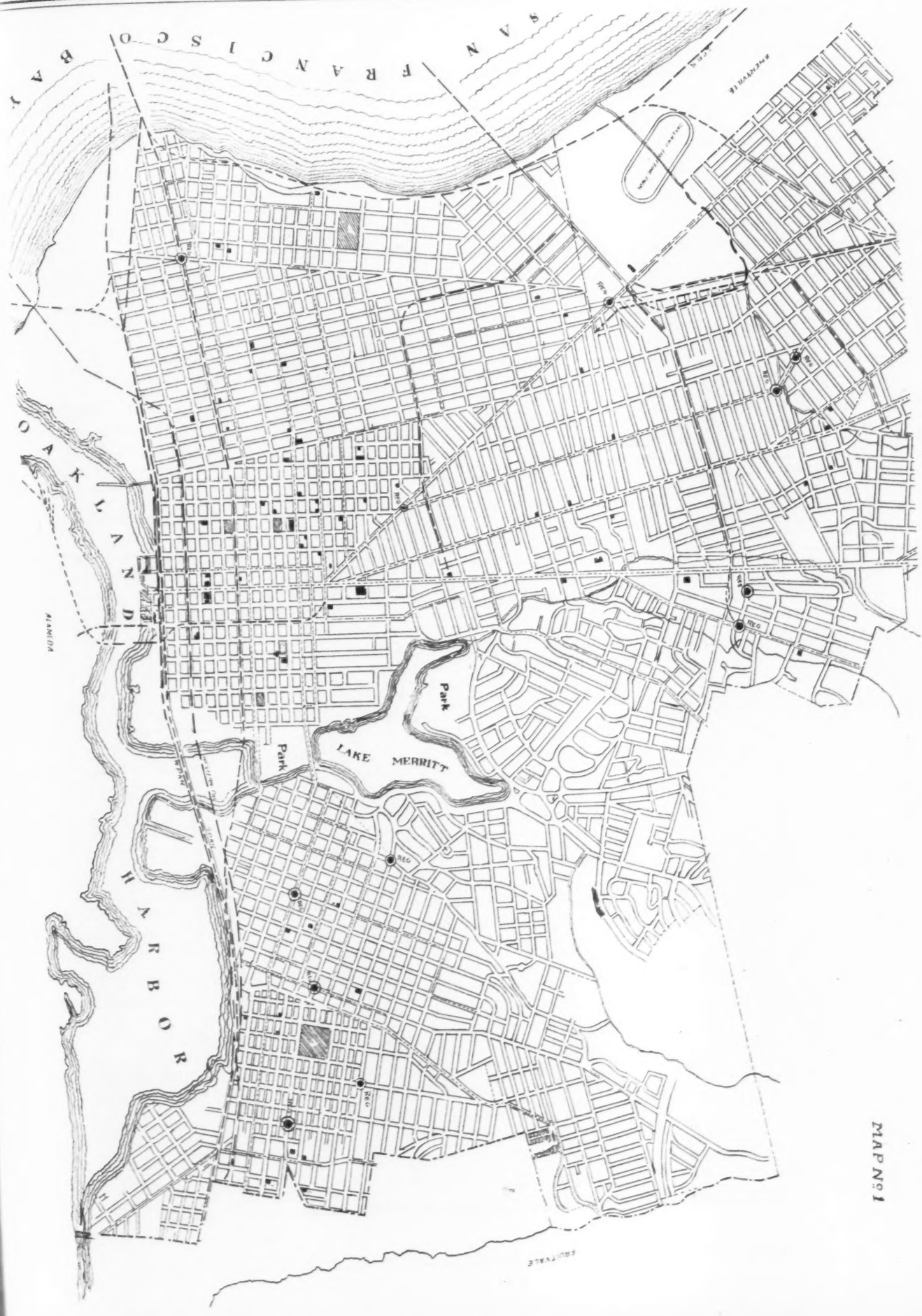
Second Day—Afternoon Session.

The Chairman—As Mr. Sherwood Grover, the author of the paper on

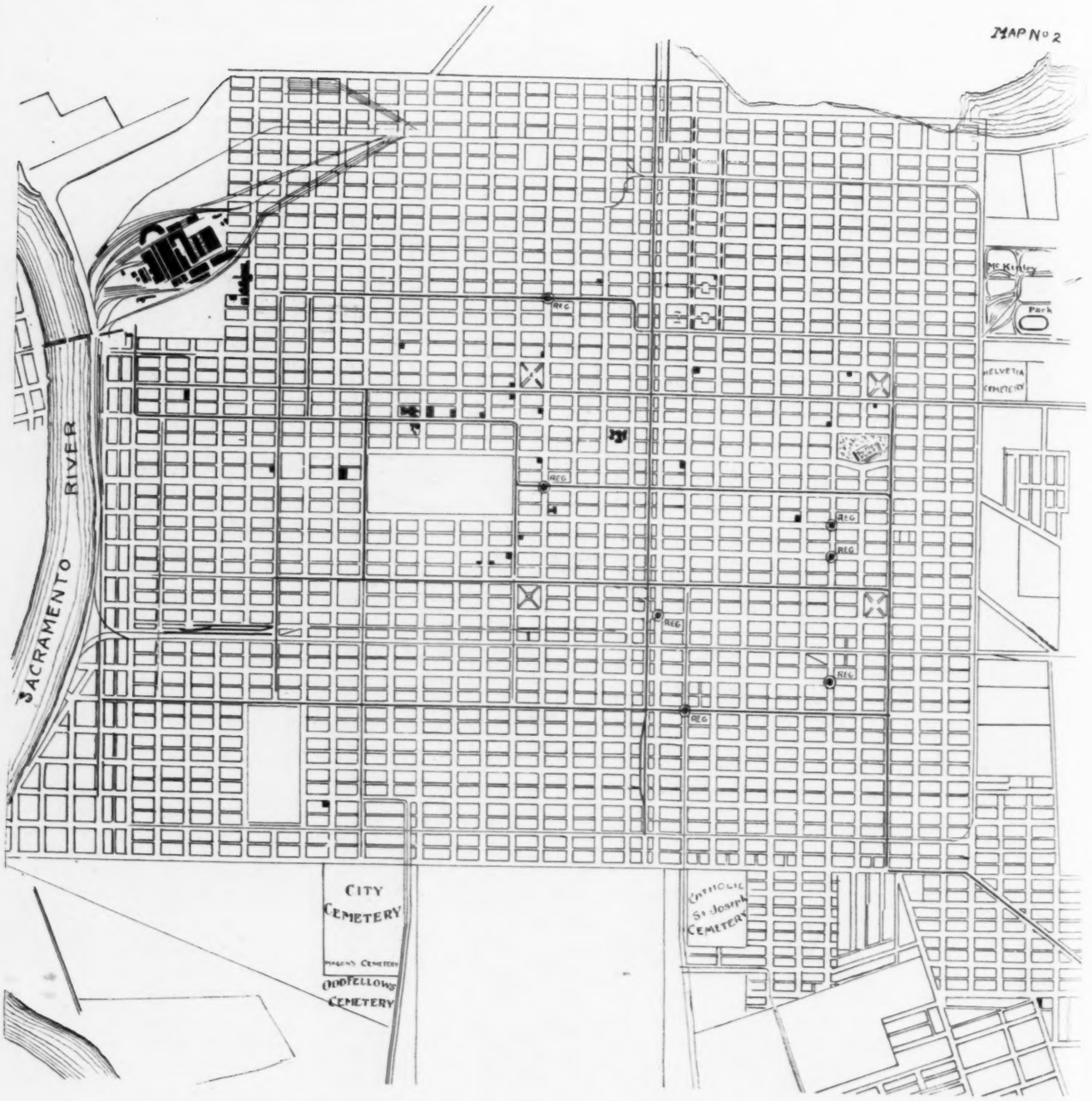
SOME NOTES ON NAPHTHALINE CONDITIONS IN CALIFORNIA

is not present, I will ask Mr. Rix to read it for him, which that gentleman did as follows:

After starting to tabulate this data I found the records, from which I had expected to obtain the information had, until recently, been



MAP No. 1


MAP No 2
SACRAMENTO RIVER
CITY CEMETERY
ODDFELLOWS CEMETERY
CATHOLIC St Joseph CEMETERY
HELVETIA CEMETERY
Mc Kinley Park
REG

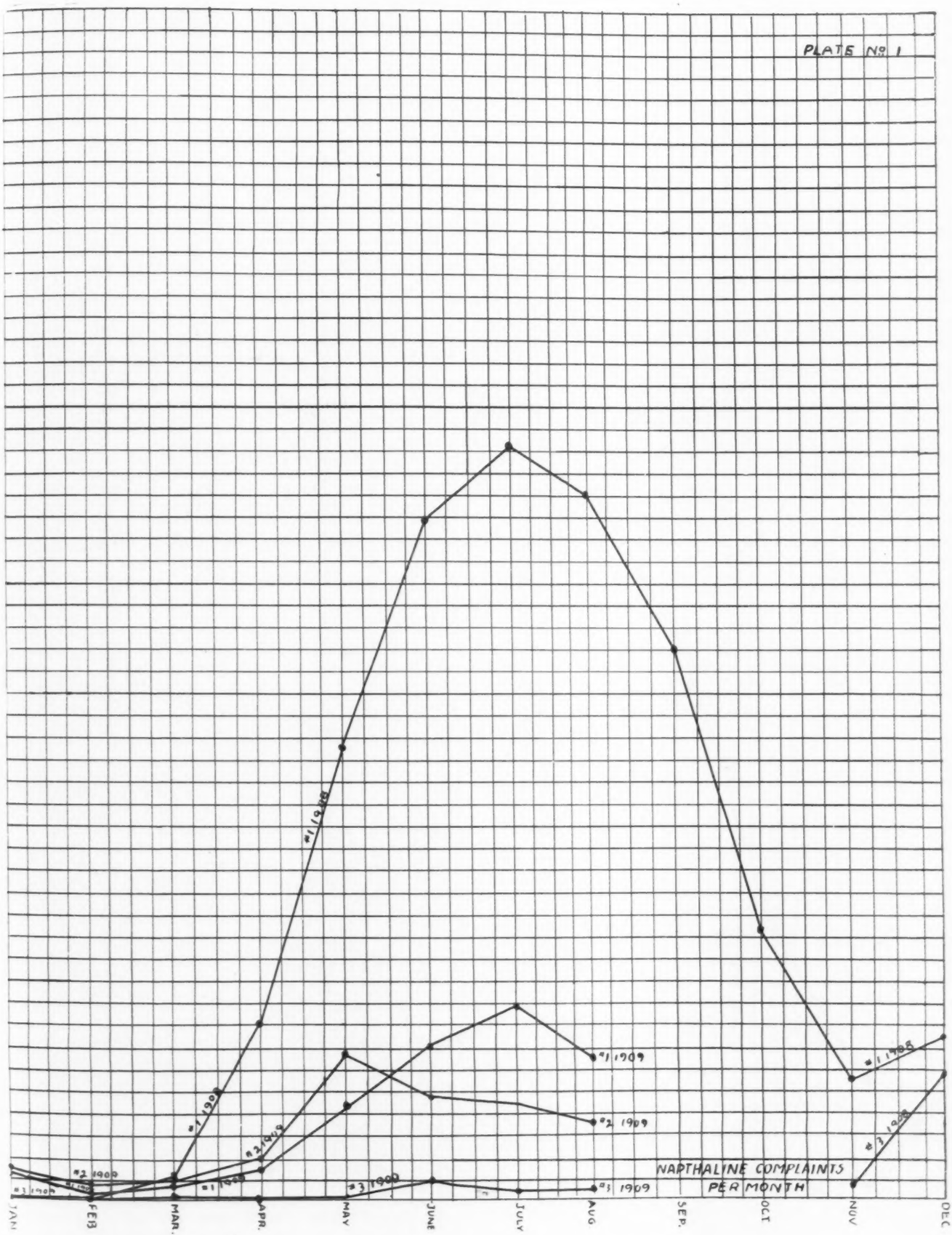


PLATE No 1
#1 1908
#1 1909
#2 1909
#3 1909
NAPTHALINE COMPLAINTS
PER MONTH
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JUNE
JULY
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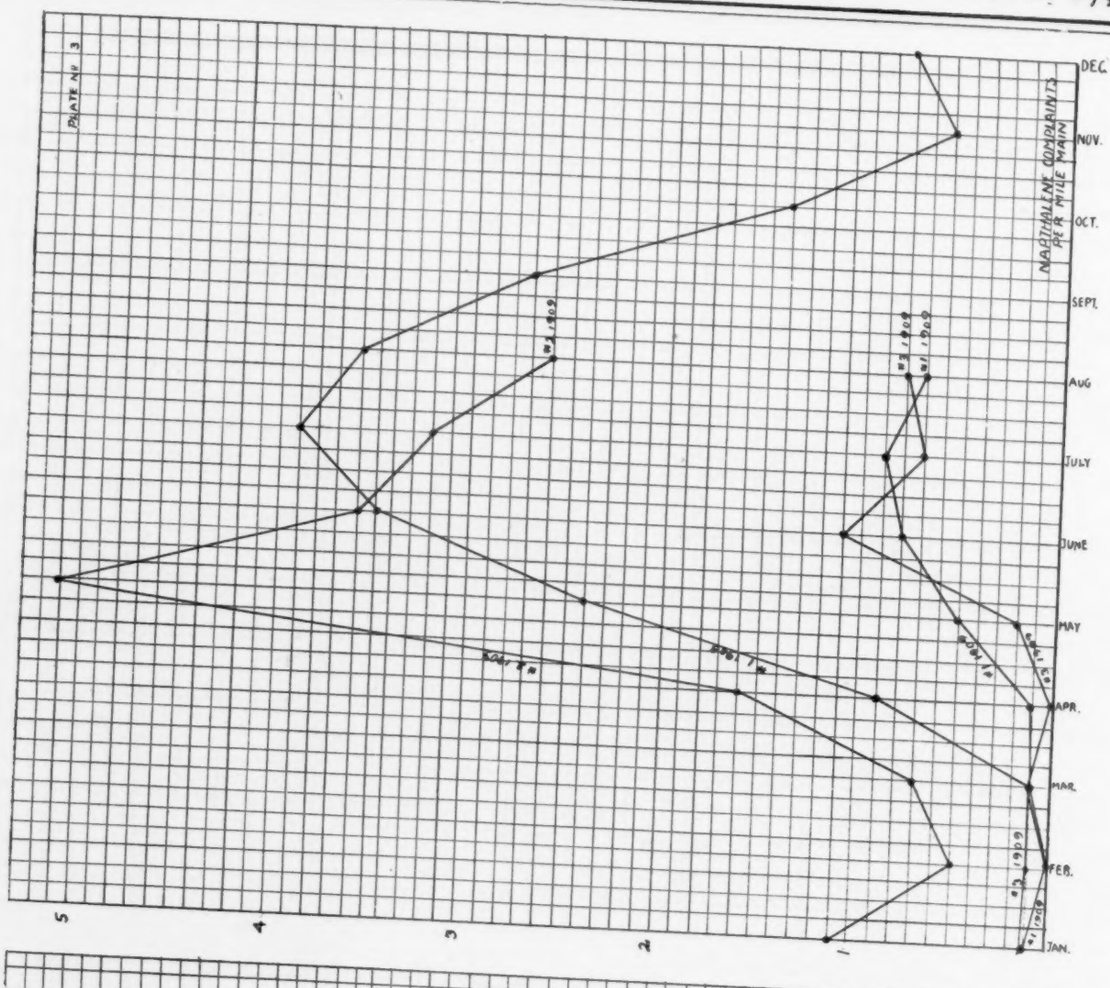
PLATE No 3
NAPHTHALINE COMPARING PER MILE MAIN
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1

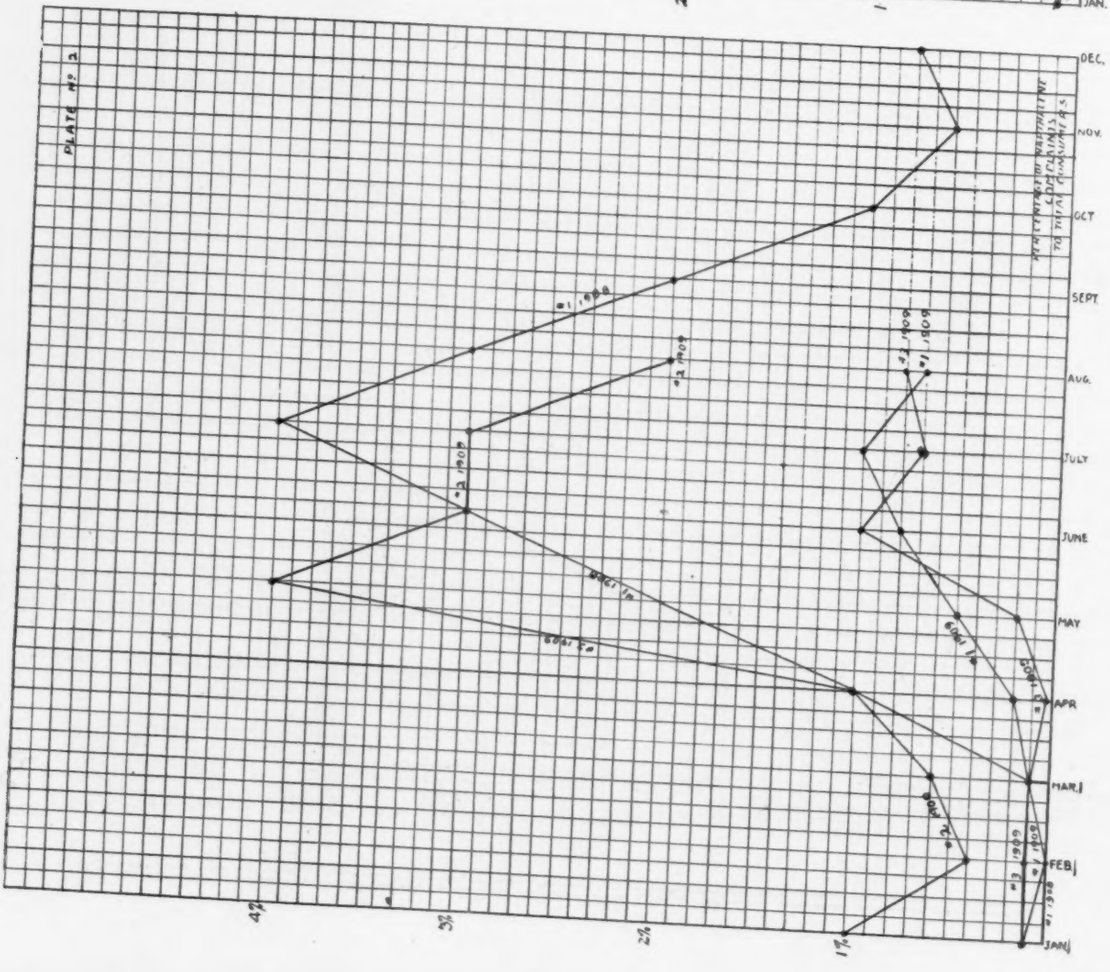
PLATE No 3
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kept in a way to involve a greater amount of digging up than I at first anticipated, with a result that the limited time did not allow going into the matter as fully as first intended.

It was not the intention in this short article to deal with the special properties of naphthaline which have been so often discussed in various papers. I will simply refer the reader to "Proceedings" of the Pacific Coast Gas Association, Vol. 6, pp. 234-36, also pp. 257-59, where the peculiarities and special attributes of this compound are thoroughly discussed, both from the standpoint of the chemist and the gas engineer. The following is a quotation from the paper by Mr. E. C. Jones, entitled, "The Effects of High Pressure upon Illuminating Gas," published in Vol. 1, "Proceedings" American Gas Institute. "To enrich this compressed gas, it is not necessary to scrub it with compression liquor. It is required only that the gas should pass over the surface of the liquor. The writer uses in connection with all high pressure systems under his care a simple re-enriching tank through which all the compressed gas finally passes before going into the main pipe. This is called an auto-enricher on account of its simplicity and self-operation." That quotation contains the key to the observations which follow.

The notes which have been obtained have been plotted graphically, so that comparisons can be made in the easiest manner. The data was all obtained from three different gas distribution systems, and the curves corresponding to respective plants are Nos. 1, 2 and 3; No. 1 being the largest plant and No. 3 the smallest. Their respective daily outputs are to each other about as 10, 2 and 1. Each of the systems is a combination of high and low pressure distribution, and all have three different kinds of service; namely, low pressure direct, low pressure fed by district regulators from high pressure mains, and direct high pressure with individual regulators. All of the systems have compression tanks of the same size for storage, although varying in number. The methods of operating the different systems vary however.

System No. 1—Map No. 1.—In this case several different high pressure lines are feeding into as many localities distant from the works, each of these high pressure feeders having district governors feeding off into the low pressure system at various intervals in its length. The pressure carried on this syrtem is, at this season of the year, 20 pounds, except for a period of 2 hours during the evening peak, when 25 pounds is maintained. During the winter months the peak pressure is carried 5 pounds higher than this. One feature in this system, which differs from the other two, might be noticed. The compressors are shut down immediately before midnight and the compression tanks maintain the pressure as long as their capacity lasts, after which ordinary holder pressure is maintained. In other words, for a period of approximately 4 hours this entire distribution system is under low pressure.

System No. 2—Map No. 2.—In this case there is but one high pressure line feeding a territory some distance from the works but having several regulators feeding off into the low pressure system at intervals in between. In the operation of this system a pressure, varying between 8 and 20 pounds, is maintained at different periods during the day, depending upon the peak load, and at night a constant pressure of 2 pounds is maintained on the high pressure system.

System No. 3.—In this case there is an equivalent of two high pressure lines starting from the works feeding a territory distant from the works, but on this main a pressure varying between 20 and 35 pounds is maintained. At no time during the 24 hours does the pressure fall below 20 pounds. In System No. 1 all of the gas passes through one compression tank or auto-enricher, above referred to, there being no means of by-passing this tank.

In Systems No. 2 and 3 it is possible by means of connections (in place) to by-pass this tank and pump direct into the high pressure main from the compressor.

As to the naphthaline complaints. In System No. 1 the records show they have no naphthaline complaints in district supplied by high pressure gas, either supplied direct by individual regulators or in low pressure territory fed by district governors from high pressure mains. Map No. 1 shows this system with the regulators marked. The shaded portion of the map is approximately the territory in which all of the naphthaline complaints occur. This is interesting in view of the fact, as above stated, this entire system is all low pressure for about 4 hours out of the 24. It is true it is during the period of minimum consumption.

In System No. 2 they have no naphthaline complaints in the district under low pressure which is supplied with high pressure gas through district governors. Practically all of the complaints are in the direct, low pressure district, the same as in System No. 1, and the shaded portion of the map, marked No. 2, shows the relation between the territory of naphthaline complaints and the district governors. In this case, however, they do have occasional complaints of naphthaline in the district which is distinctly high pressure fed by individual regulators, and in these cases the complaint man usually reports the presence of a thick, dark, mostly black liquid, in fact sometimes the only thing taken out is a dark liquid from which the naphthaline crystalizes out on exposure to the air.

In System No. 3 the condition is somewhat similar to No. 2, except that the stoppage of naphthaline in the distinctly high pressure district is much more pronounced, and in fact has been so bad that it has plugged 2-inch mains solid. The main difference in the installation between Case No. 1, where we have no naphthaline stoppages in any districts supplied by high pressure gas, and Cases Nos. 2 and 3, where they do have naphthaline stoppages in the distinctly high pressure districts, is the fact that the latter two are equipped so that the compressors can pump into the main without passing through the auto-enricher. In fact, in Case No. 3, the compressors discharge into a 10-inch main, which is about 50 feet long, and there reduces to a 3-inch. This length of pipe, when the compressors are pumping direct into the main, would act as a first-class trap for collecting benzol and the naphthaline, which would be thrown down, the naphthaline, of course, dissolving with readiness in the benzol. This condensation would accumulate at this point until the condition was right for the gas to force this liquid solution of naphthaline out into the main itself. As this liquid travels along the main it is passing from a condition of higher pressure to lower pressure, and the ability of the gas under these conditions to re-enrich itself with benzol could have but one ultimate effect—the recrystallization of the naphthaline from its solution with benzol.

In Plate No. 1 the actual number of naphthaline complaints have been plotted according to a given unit of the three different systems for each month. This forms a means of comparison, if you keep in mind the relative sizes of the plants above mentioned, otherwise it means nothing except to show considerable improvement in System No. 1 between the years 1908 and 1909.

In Plate No. 2 the percentage of naphthaline complaints in 1 month to total consumers affords a means of comparison on a fair basis, but will be of more value after another year, with the present method of keeping records has passed, as a means of obtaining information.

Plate No. 3 would appear to be a fair method of making comparisons, although the nature of the curves is in a measure similar to those on Plate 2, a slight variation, however, being worthy of note.

(To be Continued.)

Reilly's Apparatus for Purifying Tar.

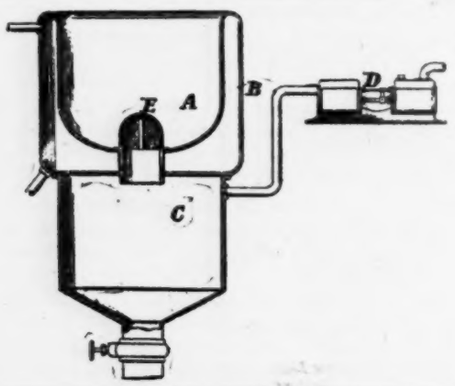
On October 27, 1909, English Letters Patent (No. 22,853) were granted to Mr. P. C. Reilly, of Indianapolis, Ind., for a tar purifying device. The invention relates to "the treatment of tar so as to remove a portion of its constituents by mechanical means and render the remainder more useful than the whole tar would be for such purposes as impregnating wood." As a "cheap, rapid and efficient" method for separating such suspended matter from tar, the patentee says he has found that if the tar be heated to a temperature of from 150° to 250° F., and then pressure be applied to the liquid, either by the creation of a vacuum below the filter or by artificial pressure above the filter, it is possible to cause "a satisfactory, and probably complete, separation of the suspended matter from the tar, rapidly and cheaply, by mechanical filtration alone."

The products of the process are principally the free carbon which remains upon the one side of the filter and the other constituents of the tar which pass through the filter. Each of the products obtained is claimed as "a new article of manufacture," and each has specific commercial value, and may be applied to uses which are "new and distinctly advantageous." The residue remaining upon the filter, consisting substantially of free carbon, is available for any of the uses for which finely-divided carbon is employed—such as the manufacture of paint, electric light carbons, battery electrodes and other similar uses. Further, the residue has marked differences from that obtained by other processes and ordinary carbon.

The filtrate which passes through the filter may be employed for the manufacture of hydrocarbons from it by distillation. The filtrate may also be employed for impregnating wood, as it is found not to contain any free carbon, and when compared with oils heretofore derived from tar, it is relatively not volatile. At ordinary temperatures it has a

gravity of about 1.05 to 1.20, which is greater than that of any oil heretofore derived from coal tar, and can, by the usual methods of impregnation, be forced into and through the pores of wood, so as to fill the pores and interstices of the wood and make it antiseptic and waterproof. This process has been made the subject of a companion patent—No. 22,854. The filtrate thus derived contains practically all the oils of the original tar in a liquid state, including the anthracene contained in solution.

A simple apparatus by which the process can be carried into operation is shown. The vessel *A*, in which the tar is placed, is provided



Reilly's Tar Purifier.

with a steam jacket *B*, for the purpose of heating the tar to the desired temperature. *C* is a receiving vessel closed, except for its opening into the vessel *A* and to the air pump *D*, which is used for the purpose of reducing the atmospheric pressure in the vessel *C*. *E* is a filter in the bottom of the vessel *A*, preferably made of conical form for the sake of strength, and covered with wire cloth, over which is placed a finer filter of textile cotton cloth or the like, of a suitable mesh—preferably double twilled muslin.

The vessel *A* is open to the atmosphere. It is partially filled with tar, which is heated to a temperature of 150° to 250° F. The air pump is started and the pressure in the tank is reduced to about 25 inches of mercury; but the greater the vacuum the more rapid the process. The pressure may be augmented by closing the upper tank and applying air pressure or steam pressure to the top of the tar, or the vacuum below the filter may be wholly dispensed with and pressure above relied upon. The tar will then flow slowly, but fast enough for practical purposes, through the filter, and the free carbon will be left upon the filter.

Special English Correspondence.

COMMUNICATED BY NORTON H. HUMPHRYS.

SALISBURY, ENGLAND, Dec. 10th, 1909.

An Early Winter.—Popularizing Gas.—Gas Light as an Appetizer for Birds.

There is a saying to the effect that November is the gas man's harvest month, and the experience of the present year goes to show that there is much truth involved in the statement, notwithstanding the fact that November, according to the experience of the last year or two, has fallen somewhat into disrepute in the estimation of gas people. November sets the time for the winter's business. If there is but little cold weather before Christmas, the coke heap acquires alarming proportions and there is little demand for gas heating appliances; because, when the New Year comes, people begin to fancy, rightly or wrongly, but usually wrongly, that they are nearly through the winter, and that they can worry along with the existing arrangements for another year. We have just passed through a fine and dry but cold month, and the result is highly satisfactory, both as regards sales of gas and of coke. The consumption of gas varies inversely with the height of the thermometer, and an early winter means a run on gas stoves. There has been quite a lively trade in gas fires and especially in gas steam radiators. Open gas fires are not in every way a success in small country towns. The houses are for the most part piped with the smallest and the cheapest materials, and the result of putting on a gas fire, requiring perhaps 20 cubic feet of gas per hour, to a system of that sort, is disastrous either to the success of the fire, or to the efficiency of the incandescent gas burners. An additional bill for new and adequate sized piping is a great objection, and many will not have the gas fire unless the necessary pipe is supplied free. Gas companies are told that they must be enterprising, and encourage the fuel consumption, but it is as well to remember that every heating appliance is practically an addition to the highest peak load, since the coldest weather is usually experienced in the shortest days of the year. More than that, the gas heating trade in the South of England is very uncertain. While the engineer must be provided with plant equal to the demands of a 6 weeks' frost, there is no guarantee that the frost will come. And it is disappointing to the management, and unsatisfactory at the end of the financial year, if the plant is not worked fairly up to its maximum quantity. With the gas cooker it is different. The appliance is used all the year round, irrespective of weather, and nothing short of a national calamity would interfere with the regular cooking consumption. The addition to the peak load is not $\frac{1}{16}$ of the total annual consumption. The meaning of all this is that, in an average English climate, the quantity of gas supplied for heating purposes should not exceed a certain proportion of the whole. Up to a certain point it assists in reducing the cost per 1,000 cubic feet of gas made, but beyond that point it tends to increase them. Some enthusiasts talk of gas as the fuel of the future, that will displace solid and liquid fuels. But if that happy day should come, I am not sure it would be an unmixed blessing for the gas company that desires to sell at the lowest possible rate. The idea opens up the question of whether it pays to sell coke as such, at a price rather more than that paid for coal, or to convert it into gas and touch it up with petroleum. As things are at present most of us can do very well out of the coke heap as coke. A note on the consumption and demand for gas is not complete without a reference to the numerous lighting improvements, mostly in connection with the inverted gas burner, that have been introduced this season, with the result that in addition to the business above mentioned, the lighting department was never in a more healthy condition. If a brilliant cluster is required, a combination of 4 or 5 inverted burners in one lamp gives a result that cannot be equalled by any other means, either in respect to purity, brilliancy, steadiness, or cost. There is no mistake about it. Gas is not going backwards this year.

Herr L. Schöne is a popular lecturer in Germany on the uses of gas, and he has opened his heart on the subject of his experiences in the columns of the *Journal für Gasbeleuchtung*. His remarks are so sound and pertinent that they deserve very careful consideration from all who desire to increase the sales of gas. He thinks that most of the so-called popular reading matter that is distributed is of little use, because it does not get read. The man of business cannot spare the time, the lady of the house is conservative in her ideas, and so the bulk of the printing goes to the waste basket. This view corresponds with the experience of a gas company here. Accepting the suggestion of an advertising firm who offered matter suitable for inclosing with the quarterly bills, each account was sent out folded in a nice little leaflet got up in popular style. When the collectors followed in the usual course, a large proportion of the customers denied ever having received the bill, and considerable work had to be done in the way of writing out duplicates. It was evident that the leaflet inclosure facilitated the way for a direct journey of the whole parcel to the waste basket. As the result of many years' experience I think that a very small percentage of any solid printed matter extending, say to over a page in length, is perused in such a way as to be of use to the sender. Many do not read it at all, others glance cursorily through it, but very few take up and act upon the no doubt excellent suggestions contained therein. Therefore, I confine all printed matter for the consumers to short, pithy sentences that can be contained in a few inches space of displayed type. Herr Schöne goes on to say that a lecture with demonstrations gives something to see and to understand, does attract attention and carries a meaning to the mind. But a lecturer must be careful to make his audience thoroughly understand exactly what he means. It is so easy to talk over their heads, by taking it for granted that they understand simple little details, which as a matter of fact they do not understand. Chemical formulas and diagrams with reference letters are likely to create fatigue, want of interest and mistrust. Simplicity and intelligibility should be the first consideration. Then the people want to see the things that are talked about, to see them at work and to see something that appeals to their own power of computing daily expenses. It is not enough to show them that gas will cook meat, but let them see that one apparatus will require less gas than another to do the

same work. Get down to practical points of detail whereby economy is attained, and, while fully discussing and comparing different types of appliances, in all cases show the comparison in action and not in words alone. An audience is appreciative, attentive and grateful, if this can be done. One thing that never fails to impress an audience is to get them to understand the extreme want of economy of the older methods, which waste a large proportion of the heat. In the various cooking and domestic economy courses of lectures that are delivered in all parts of the country, there is too little real knowledge of the uses of gas imparted. The teachers themselves do not know enough, and on the other hand, the practical gas man does not know enough about the domestic economy point of view in relation to the uses of gas. The public is fascinated by that which it finds interesting, and is too apt to imagine that there are no novelties and nothing interesting in gas. The best way to correct this mistake is by means of interesting and practical lectures and demonstrations.

These views are particularly interesting at the present time when so much is heard about the necessity for employing a competent staff to advise the consumers on all points relative to the uses of gas. The advice addressed to speakers and demonstrators on the lecture platform also applies to a great extent to the house-to-house canvasser, or to the representative sent in response to a request from a possible customer. Of these, it cannot be said that they never talk over the heads of their audience, that they always make their meaning clear, or that they avoid unintelligible and uninteresting technical slang. What the public want is plain common sense. It is quite true that they fight shy of formula and diagrams. But, on the other hand, there is not much in ponderous jocularity, or in humor so far stretched that a microscope is necessary to see the point. There was once a humorist who published what he thought was a capital joke. But he was rather taken aback when a country newspaper published it as a puzzle and offered a substantial prize for a correct answer. Some of the attempts at dealing with these matters in a manner that is intended to be light and popular are so very forced, so very heavy, that they are likely to miss fire. Humor is a most valuable adjunct in advertising, but requires great tact and judgment if it is to be used with success.

One of the most curious uses to which gas burners are adapted is in the house where rare and delicate tropical birds are kept at the Zoological Gardens in London. The birds will not feed in the dark, and during the winter the hours of daylight are so short, and the nights so long, that some have been found to suffer from want of sufficient food. A number of incandescent burners, fitted with a pneumatic arrangement, enabling them to be controlled from the exterior, have been put into the house and are regularly turned on for about two hours morning and evening. The result is stated to be very satisfactory. The birds commence feeding directly the light is turned on, and the effect on their general health and on the mortality returns has been most encouraging. Statements have been published as to the effect of light on vegetation, but I do not remember hearing of a previous instance in which it was applied for the benefit and preservation of animal life. But the point of the incident is that if gas burners can be used to the advantage of birds of paradise and such like small, delicate things, what becomes of the alleged poisonous products of combustion that have been so much labored by those interested in creating a prejudice against gas? A known authority stated, some years ago, that he expected to prolong his life by banishing gas from his sitting rooms. Sometimes one meets with subtle suggestions as to the effect upon health, calculated to appeal to nervous fears rather than to a clear comprehension of the facts. Sometimes there is reckless reference to sulphur, carbonic oxide, the removal of the vital principle from the air, etc. The fact above stated effectively exposes all such nonsense. It has long been known to all who have made careful inquiry into the facts that if a room is ventilated as it should be, and ordinary care is used in the selection and placing of the appliances, the atmosphere is improved rather than otherwise by lighting up the gas. A movement of the air is created that facilitates the continual change of air that constitutes ventilation, and the flame is a crematorium for large numbers of germs that otherwise would have a good chance to increase and multiply. Most of the evil effects attributed to the products of combustion have no existence in fact, and a large portion of the remainder is due to defective ventilation.

MR. J. B. HUNTTING has severed his connection with the Boston Consolidated Gas Company to accept a position in the new business department of the Denver Gas and Electric Company.

Meeting Times of the Various Gas Associations.

American Gas Institute.—Annual meeting, October, 1910. Atlantic City, N. J. Officers: President, Wm. H. Bradley, N. Y., City; Secretary, A. B. Beadle, 29 West 39th street, N. Y. City.

Canadian Gas Association.—Annual meeting, June, 1909. Hamilton, Ont. Officers: President, J. S. Norris, Montreal, P. Q.; Secretary and Treasurer, A. W. Moore Woodstock, Ont.

Empire State Gas and Electric Association.—Annual meeting, Nov., 1910. New York City. Officers: President, C. R. Huntley, Buffalo, N, Y.; Secretary, C. H. B. Chapin, 29 W. 39th street. New York City.

Guild of Gas Managers of New England.—Annual meeting, December. Young's Hotel, Boston; monthly meeting, second Saturday. Officers: President, A. K. Quinn; Newport, R. I.; Secretary, Walter G. Africa, Manchester, N. H.

Illinois Gas Association.—Annual meeting, time, March 18, 1910, Chicago, Ills. Officers: President, E. G. Schmidt, Springfield, Ills.; Secretary-Treasurer, C. B. Stronn, Elgin, Ills.

Illuminating Engineering Society.—Annual meeting, January 14, 1910. Meetings of Sections, monthly. President, W. H. Gartley, Philadelphia, Pa.; Secretary, Preston S. Millar, 29 W. 39th street, N. Y. City. Sections: New York: Secretary, Albert J. Marshall, 227 Fulton street. New England, Secretary, L. D. Gibbs, 39 Boylston street, Boston, Mass. Philadelphia, Secretary, F. N. Morton, Broad and Arch streets. Chicago, Secretary, T. R. Beebe, 157 Michigan avenue,

Indiana Gas Association.—Annual meeting, January 19, 1910, Indianapolis, Ind. Officers: President, J. W. Dunbar, New Albany, Ind.; Secretary-Treasurer, Philmer Eves, Indianapolis Gas Company, Indianapolis, Ind.

Iowa District Gas Association.—Annual meeting, time, June 23, 24, 25, 1910, Sioux City, Ia. Officers: President, Geo. H. Waring, Omaha, Neb.; Secretary and Treasurer, G. I. Vincent, Des Moines, Ia.

Kansas Gas, Water and Electric Light Association.—Annual meeting, time, ———— Wichita, Kas. Officers: President, W. A. Scothorn, Hutchinson, Kas.; Secretary and Treasurer, J. D. Nicholson, Newton, Kas.

Michigan Gas Association—Annual meeting, time, September, 1910; ———— Officers: President, B. O. Tippy, Grand Rapids, Mich.; Secretary-Treasurer, Glenn R. Chamberlain, Grand Rapids, Mich.

Missouri Electric Light, Gas, Water Works and Street Railway Association.—Annual meeting, April 14, 15 and 16, 1910; Jefferson City, Mo. Officers: President, W. A. Bixby; Secretary and Treasurer, C. L. Clary, Sikeston, Mo.

National Commercial Gas Association.—Annual meeting, third week in October, 1910: Boston. Officers: President, E. N. Wrightington, Boston; Secretary, Lucius S. Bigelow, 106 Fulton street, New York City.

Natural Gas Association.—Annual meeting, May 17, 18 and 19, 1910; Oklahoma City, Okla. Officers: President, William H. McKenzie, Kansas City, Kas.; Secretary, T. C. Jones, Delaware, O.

New England Gas Association.—Annual meeting, third Wednesday in February; Boston. Officers: President, Walter G. Africa, Manchester, N. H.: Secretary-Treasurer, N. W. Gifford, East Boston, Mass.

Oklahoma Electric Light, Railway and Gas Association.—Annual meeting, May 18, 19 and 20, 1910; Oklahoma City. Officers: President, F. H. Tidman, Oklahoma City, Okla.; Secretary-Treasurer, Galen Crow, Guthrie, Okla.

Pacific Coast Gas Association.—Annual meeting, ————, 1910, Los Angeles, Ca. Officers: President, W. B. Cline, Los Angeles, Cal.; Secretary-Treasurer, John A. Britton, 925 Franklin street, San Francisco, Cal.

Pennsylvania Gas Association.—Annual meeting, April 13, 1910, Easton, Pa. Officers: President, E. G. Holzer, Easton, Pa.: Secretary-Treasurer, William H. Merritt, Lebanon, Pa.

Society of Gas Lighting.—Annual meeting, Dec. 9, 1909; monthly meeting, second Thursday. Place, New York City. Officers: President, Fred. S. Benson; Secretary, George G. Ramsdell, 1123 Broadway, New York.

Southern Gas Association.—Annual meeting, Feb. 16, 1910, Chattanooga, Tenn. Officers: President, R. C. Congdon, Atlanta, Ga.; Secretary-Treasurer, James Ferrier, Rome, Ga.

Southwestern Electrical and Gas Association.—Annual meeting. ————, 1910, Beaumont, Tex. Officers: President, R. B. Stichter, Dallas, Tex.; Secretary's office, 300 Commerce street, Dallas, Tex.

Wisconsin Gas Association.—Annual meeting, May 11 and 12, 1910, Milwaukee, Wis. Officers: President, R. B. Brown, Milwaukee, Wis.; Secretary-Treasurer, H H. Hyde, Racine, Wis.

Recent Patent Issues.

Prepared for the AMERICAN GAS LIGHT JOURNAL by ROYAL E. BURNHAM, solicitor of patents and counselor in patent causes, 833 Bond Building, Washington, D. C., from whom illustrations and specifications of any patent mentioned below may be obtained for 10 cents.

942,901. Apparatus for Electrically Igniting Gas Burners. A. J. Hill, W. Green and F. C. D. Mann, Hayes, England.

942,929. Gas Apparatus. A. P. Rickmire, Waterloo, Ia.

943,182. Apparatus for the Manufacture of Producer Gas. W. J. Crossley and T. Rigby, Manchester, England.

943,332. Gas Producer Valve. B. M. Aslakson, Salem, O.

943,385. Process and Apparatus for Burning Oxygen with other gases. A. R. Bullock, Cleveland, O.

943,422. Apparatus for Treating Gases and Separating Smoke and Dust therefrom. E. G. Knoepfel, San Francisco, Cal.

943,488. Incandescent Mantle. T. Terrell, London, England.

943,601. Gas Generator. J. H. Jourdan, New York City.

943,617. Gas Heating Apparatus. W. E. Lawson, Homestead, Pa., assignor to Lawson Manufacturing Company, same place.

943,627. Manufacture of Gas for Illuminating, Heating and Power purposes. H. G. Elworthy, St. Albans, England; Ellen Gertrude Elworthy, administratrix of said H. S. Elworthy, deceased.

Items of Interest
FROM VARIOUS LOCALITIES.

MR. SAMUEL A. CHASE, who for some years has been with the Westinghouse Electric and Manufacturing Company, in the capacity of special detail and supply salesman, has resigned to accept a position with the White Investing Company, of New York, well known to gas men from its dealings in gas shares for investment. Mr. Chase's headquarters will be in the Chicago office of the White Investing Company.

MR. CHARLES ROBINS who has been in the service of the Westinghouse Electric and Manufacturing Company for several years, has been appointed Manager of the Company's Industrial and Power Sales division, with headquarters in East Pittsburgh.

THE new desk pad blotter just gotten up by the Western Gas Construction Company, is neither soulful nor aesthetic, but we venture to remark that it will not be relegated to the waste basket by those who receive a copy thereof.

THE Brockport (N. Y.) Gas Light Company has contracted with the Improved Equipment Company, of New York, for the placing of 2 benches of 6's, to be equipped with the Doherty Fuel Economizer. Superintendent Fritchman is also in the market for 8,000 feet of main pipe, 1,500 feet of service pipe, 1,000 bushels of oxide, an exhauster with engine, complete, and a coke crusher.

ON November 22d a franchise for the construction and operation of a gas works in Greenville, Ky., was purchased by Mr. W. L. Hudson, of Louisville, at his bid of $305. Early this month the purchaser applied to the City Council of Greenville for a ratification of the instrument and a week or so later the necessary consent was given. Mr. Hudson says his backers are in earnest in their intention to construct a gas plant at Greenville.

THE Public Service Commission has compiled a table or tables showing the total sales of gas on public and private lighting account in New York city during the year 1908. The tables include the total and average rate per 1,000 cubic feet sold. Appended is a listing of the various groups under which private lighting was done during the period named:

Company.	Rate Charged.	Cubic Feet Sold in Thousands.	Sum of Revenue.	Average Price.
Con. Gas group	....	22,452,298	$22,363,200	80 cents.
B. Union Gas Co.	80 cents.	8,788,530	7,031,228	
Flatbush Gas Co.	80 cents.	376,417	300,260	79.8
Total group 1		31,617,245	$29,694,787	
" " 2		978,986	979,175	
" " 3		585,756	672,663	
" " 4		116,401	159,845	137.2
Total N.Y. City		33,298,388	$31,506,470	

The total respecting public lighting for the year 1908, the rate being 75 cents per 1,000 feet, is appended:

Company.	Cubic Feet Sold in Thousands.	Sum of Revenue.	Average Price.
Con. Gas group	563,187	$505,380	....
B. U. Gas	243,883	182,166	75 cents.
Flatbush	19,952	14,064	"
Total group 1	826,026	$70,170	
Group 2	133,540	174,222	
" 3	20,771	17,137	
" 4	6,835	5,854	85.6 cents.
Total N.Y. City.	987,172	$898,723	

In Group 1, for private lighting, the legal rate was 80 cents, and the Companies included in this group comprising the Consolidated Gas system were the Astoria Light, Heat and Power, Consolidated Gas, Central Union Gas, New Amsterdam Gas, New York Mutual, Northern Union Gas, Standard Gas Light and the Westchester Lighting. The legal rate for lighting in group 2 was $1 per 1,000 cubic feet and the Companies embraced in this group were the Kings County Lighting, Jamaica Gas Light, Newton Gas, Richmond Hill and Queens and the Woodhaven Gas. The legal rate for lighting of group 3 was $1.15 and the Companies included were the Bronx Gas and Electric, Brooklyn Borough Gas, New York and Queens Gas and the New York and Richmond Gas. Group 4 included the Queensboro Gas and Electric, the rate per 1,000 charge of gas for which was not fixed by law.

THE proprietors of the Richmond (Ind.) Light, Heat and Power Company have announced a new rate schedule to become effective the 1st prox. Its scalings are: Less than 25,000 cubic feet per month, $1 per 1,000; in excess of 25,000, 80 cents per 1,000. Heretofore the rate was $1.20 per 1,000, less 10 cents per 1,000 for prompt payment.

MR. WILLIAM WALKER, formerly Superintendent of the gas division of the trading of the Fitchburg (Mass.) Gas and Electric Light Company, has associated himself with the H. M. Downs Printing Company, of Fitchburg. He was also elected Treasurer of the Company, Mr. H. M. Downs is its President.

MR. H. THOMPSON, for several years in the employ of the Hazleton (Pa.) Gas Company, recently resigned therefrom to accept a responsible place in the service of a large car building concern in Berwick, Pa.

AN oddly-occasioned fire is reported from Fitchburg, Mass., the morning of the 13th inst. A 10-light meter was located in the cellar of the premises, 116 Prichard street, that city, occupied by Mr. Henry F. Coggshall. The fire did not cause much damage, and Fire Chief Murnane gave this as the cause of the blaze: The meter was on a suspended platform, the suspender rods resting across a beam, the meter being placed on a shelf. It had no support from below. From one cause or another the rods tilted and the meter fell to the floor. The dial plate was dislodged and the gas ignited from a lighted jet over which the meter chanced to pass. It is said that meters similarly supported are quite numerous in Fitchburg, and Fire Chief Murnane has notified the Company that not only must the practice of suspending meters be stopped, but all so set shall be set according to the practice prevailing in Boston.

THE Directors of the New Haven (Conn.) Gas Light Company have elected Mr. H. Stuart Hotchkiss to the vacancy on the Board occasioned by the death of Mr. Pierce N. Welsh.

THE Philadelphia capitalists who controlled the operation of the Washington (N. J.) Gas Company have disposed of their holdings to local capitalists. Of those the Mayor of Washington (Mr. R. M. Petty) is the largest single owner.

MR. C. D. LAMSON, who, for quite a lengthy period, was Manager of the Boise City (Idaho) Gas Company, has been appointed General Manager of the Mexican National Gas Company, with headquarters in Mexico City.

AT a meeting of the Fremont (Neb.) Gas and Electric Light Company, held in the named place some days ago, the executive management was changed in consonance with this listing: Directors, H. L. Doherty, F. McGivern, B. C. Adams, E. C. Strode and R. W. McGinnis; President, H. L. Doherty; Vice-President, R. W. McGinnis; Secy. and Treas., Henry Warner; Asst. Secy. and Mgr., W. B. Stark. It was resolved to expend the sum of $25,000 in 1910 on betterments, and thereafter as much money will be spent as necessary to give the patrons of the Company first-class service.

THE latest speculation to hand (the afternoon of the 23d inst.) respecting the Presidency of the Laclede Gas Company is that the position will be tendered to Mr. Thomas K. West, Chairman Board of Directors of the Union Trust Company, of St. Louis.

The Consumers Gas Company, of Reading, Pa., has determined to put its pipes to and through the streets of the outlying borough of Wyomissing.

And the proprietors of the Bristol and Plainville (Conn.) Tramway Company will put its gas lines into the street system of Plainville.

Mr. Thomas Nickerson, who for quite some time has had charge of the gas and electric division of the business of the Woonsocket (R. I.) Gas Company, has been appointed Manager of the Haverhill (Mass.) Gas Light Company. Mr. Hans von Vitinghoff has been named a Superintendent of the gas division of the named property.

By an oversight one of the most important names concerned with the Directorate of the Buffalo (N. Y.) Gas Company—that of Dr. A. C. Humphreys—was omitted in our report of the Company's annual meeting. Save for that omission the text as published was an accurate one.

This writing about Buffalo puts us in mind that something quite out of the ordinary in respect of reimbursement claims cropped out in that city last month. In Buffalo there is a public playground, much enjoyed by the youth, located on Sidway street—the title to the property is in the Buffalo Gas Company. The grounds are surrounded by a board sidewalk—rather an odd thing to exist in a place as large as Buffalo is—and last Hallowe'en night some of the boys on the order Peck, tore up the planking to use it in making a suitable bonfire. The walk had to be replaced and the Company sued for the cost of renewing it—to be specific the sum asked was $62. The Aldermen, on considering the claim, held it was a valid one and ordered it paid. The Council, however, was not disposed to concur, although to us at this distance it looks that the claim is a perfectly good one, but after some verbose warfare, in which that Apostle of Civic virtue, Councilman Siegrist, declared that the account should not be honored in that the Company had been unfair to the city in its charges for gas. In the end, though, the Council concurred with the Aldermen by a vote of 5 to 3.

Mr. W. P. Murphy, formerly of Burlington, Vt., is making good in his new field, as Manager of the new business division of the St. Clair County (Ills.) Gas and Electric Company, Belleville, Ills. As an instance of this it may be noted that not less than 7,000 people visited the handsome new offices of the Company the first week in December, during which time demonstration lessons and lectures on cooking by gas were brought off.

A correspondent in Wilmington, Del., forwards the following: "The Wilmington Gas Study Club was recently formed at a meeting of the employees o6 the Wilmington Gas Company, which was held some evenings ago in Fraternal Hall. About 150 of the employees were in attendance, representing all departments of the corporation, and remarkable interest was really taken in the proceedings. The officers elected were: President, W. P. McCoy; Vice-President, W. T. Seighman; Secretary, E. Van Trump; Treasurer, A. W. Hellen; Council, W. E. Hooper, Thomas Curley and Wm. Crossley. Mr. Cooper, who has had experience in organizations of this kind, gave an interesting talk on the benefits to derived from just such Clubs. The purpose of the organization, he pointed out, is chiefly to give the employees an opportunity to become familiar with not only their own, but also with all other branches of the business. General Manager Schutt, of the Company, also told of the benefits to be derived from having a Club of this kind, the Company and employees alike profiting by the exchange of information among the members, which takes place at the meetings. The Club will meet every two weeks, for the present in Fraternal Hall, where it will have its headquarters until the Gas Company's new building is completed, when the Club will be given suitable quarters in which the meetings can be held. At these meetings all new devices obtained by the Company will be explained and taken apart and the members will be given a thorough understanding of it. After the meeting a 3-course luncheon was served by the demonstrators of the Company, under the direction of Miss Cora Brolaski. The menu was tempting and was much enjoyed."

The new gas pressure regulation system installed by the Rome (N. Y.) Gas and Electric Company, which became operative a few days ago, was put in service without a hitch and much to the satisfaction of the consumers and the Company.

Proceedings have been started under which it is proposed that, when the necessary legal formalities have been attended to, the gas and electric lighting plants of Haverhill, Mass., will be purchased by the authorities for operation on public account. The sum involved is $1,000,000. The proposition will go to a vote of the people to be taken during the State election in 1910.

Mr. Otto Schmidt, of Schenectady, N. Y., has been appointed Assistant to Manager Spring, of the Clinton (Mass.) Gas Light Company.

The United Gas and Water Company, capitalized in $100,000, and formed to deal in bonds and other securities, with headquarters in Philadelphia, was chartered in Camden, N. J., last week. Its incorporators are A. B. Sloan, H. H. Evaul and C. S. Wilmot.

PUBLIC LIGHTING TABLE.

DECEMBER, 1909.

Table No. 1.
FOLLOWING THE MOON.

Day of Week.	Date.	Light.	Extinguish.
Wed.	1	5.10PM	9.50PM
Thu.	2	5.10	11.00
Fri.	3	5.10	12.00
Sat.	4	5.10LQ	1.00AM
Sun.	5	5.00	2.00
Mon.	6	5.00	3.00
Tue.	7	5.00	3.50
Wed.	8	5.00	4.50
Thu.	9	5.00	6.10
Fri.	10	5.00	6.10
Sat.	11	5.00	6.10
Sun.	12	5.00NM	6.10
Mon.	13	5.00	6.10
Tue.	14	5.00	6.10
Wed.	15	5.00	6.10
Thu.	16	5.00	6.10
Fri.	17	8.30	6.10
Sat.	18	9.40	6.10
Sun.	19	10.50FQ	6.20
Mon.	20	11.10	6.20
Tue.	21	1.20AM	6.20
Wed.	22	2.30	6.20
Thu.	23	3.50	6.20
Fri.	24	5.00	6.20
Sat.	25	No L.	No L.
Sun.	26	No L.FM	No L.
Mon.	27	No L.	No L.
Tue.	28	5.10PM	7.30PM
Wed.	29	5.10	8.40
Thu.	30	5.10	9.40
Fri.	31	5.10	10.50

TOTAL HOURS DURING 1909.

By Table No. 1.

	Hrs.Min.
January	212.20
February	183.40
March	173.00
April	151.10
May	144.10
June	138.50
July	145.40
August	160.30
September	180.00
October	201.00
November	216.30
December	233.40
Total, yr.	2140.30

PUBLIC LIGHTING TABLE.

DECEMBER, 1909.

Table No. 2.
NEW YORK CITY.
All Night Lighting.

Day of Week.	Date.	Complete Lighting in One Hour From Time Given P. M.	Complete Extinguishing in 50 Minutes From Time Given A.M.
Wed.	1	4.07	5.52
Thu.	2	4.07	5.52
Fri.	3	4.02	5.57
Sat.	4	4.02	5.57
Sun.	5	4.02	5.57
Mon.	6	4.02	5.57
Tue.	7	4.02	5.57
Wed.	8	4.02	5.57
Thu.	9	4.02	5.57
Fri.	10	3.57	6.07
Sat.	11	3.57	6.07
Sun.	12	3.57	6.07
Mon.	13	3.57	6.07
Tue.	14	3.57	6.07
Wed.	15	3.57	6.07
Thu.	16	3.57	6.07
Fri.	17	3.57	6.17
Sat.	18	3.57	6.17
Sun.	19	3.57	6.17
Mon.	20	3.57	6.17
Tue.	21	3.57	6.17
Wed.	22	3.57	6.17
Thu.	23	3.57	6.17
Fri.	24	4.02	6.22
Sat.	25	4.02	6.22
Sun.	26	4.07	6.22
Mon.	27	4.07	6.22
Tue.	28	4.07	6.22
Wed.	29	4.07	6.22
Thu.	30	4.07	6.22
Fri.	31	4.12	6.27

TOTAL HOURS DURING 1909.

	Hrs.Min.
January	428.30
February	358.15
March	353.10
April	298.10
May	263.20
June	234.45
July	248.30
August	278.00
September	311.25
October	370.05
November	397.40
December	438.35
	3980.25
Deduct on account of 50 min. extinguishing time	30.25
Total, yr.	3950.00

The Market for Gas Securities.

The net gain in Consolidated gas value for the week was substantially 7 points. The opening bid to-day (Thursday) was 159½ to 159¾. The day for making some return to the shareholders on electric investment account is evidently close at hand. More than once since the winter set in has the output gone above 100 millions cubic feet, which rather goes to show that gas is still popular on Manhattan Island. Perhaps the show at the Garden this week did not help to boom things. Never before did that vast amphitheater carry an illumination anywhere near equal to that given there last week. When in full speed the consumption amounted to something over 12,000 cubic feet per hour, and the ventilation was so perfect that not even the faintest gas odor could be detected in any part of the structure.

The outside market is better than steady. Notably strong issues are: Peoples, of Chicago; Brooklyn Union and the Massachusetts gas series.

Gas Stocks.

Quotations by George W. Close, Broker and Dealer in Gas Stocks.

16 WALL STREET, NEW YORK CITY.

DECEMBER 27.

☞ All communications will receive particular attention.

☞ The following quotations are based on the par value of $100 per share:

N. Y. City Companies.	*Capital.*	*Par.*	*Bid.*	*Asked*
Consolidated Gas Co.	$78,177,000	100	159¼	159⅝
Central Union Gas Co. — 1st 5's, due 1972, J. & J.	3,000,000	1,000	98	101
Equitable Gas Light Co.— Con. 5's, due 1932, M. & S.	1,000,000	1,000	—	105
Mutual Gas Co.	2,500,000	100	155	165
New Amsterdam Gas Co.— 1st Con. 5's, due 1948, J. & J.	11,000,000	1,000	100	101½
New York & Richmond Gas Co. (Staten Island)	1,500,000	100	37	43
1st Mtg. Gold Bds. 5 p. ct.	1,000,000	—	100	101
New York and East River— 1st 5's, due 1944, J. & J.	3,500,000	1,000	104	107
Con. 5's, due 1945, J. & J.	1,500,000	—	97	101
Northern Union— 1st 5's, due 1927, J. & J.	1,250,000	1,000	94	100
Standard	5,000,000	100	—	75
Preferred	5,000,000	100	70	100
1st Mtg. 5's, due 1930, M. & N.	1,500,000	1,000	100	105
The Brooklyn Union	15,000,000	1,000	148	148½
1st Con. 5's, due 1948, M. & N.	15,000,000	—	95	99
Yonkers	200,650	500	130	—
Out-of-Town Companies.				
Bay State	50,000,000	50	1	1⅛
" Income Bonds	2,000,000	1,000	—	75
Binghampton Gas Works	450,000	100	—	65
" 1st Mtg. 5's	500,000	1,000	90	98
Boston United Gas Co.— 1st Series S. F. Trust	7,000,000	1,000	82	85
2d " " "	3,000,000	1,000	47½	50
Buffalo City Gas Co.	5,500,000	100	5	8
Bonds, 5's	5,250,000	1,000	73	73¼
Capital, Sacramento	500,000	50	—	35
Bonds (6's)	150,000	1,000	—	—
Chicago Gas Co. Guaranteed Gold Bonds	7,000,000	1,000	104	106¼
Cincinnati Gas and Electric Co.	29,500,000	100	92	93
Columbus (O.) Gas Co., 1st Mortgage Bonds	1,500,000	1,000	96	98
Columbus (O.) Gas Lt. & Heating Co.	1,682,750	100	90¼	91
Preferred	3,028,500	100	75¼	80
Consumers, Toronto	2,000,000	9	200	204
Consolidated, Baltimore	11,000,000	100	—	105
Mortgages, 6's	3,600,000	—	—	118
Cheapeake, 1st 6's	1,000,000	—	—	—
Equitable, 1st 6's	910,000	—	—	—
Consolidated, 1st 5's	1,490,000	—	—	112
Consolidated Gas Co. of N. J.	1,000,000	100	15	17
Con. Mtg. 5's	880,000	1,000	92	95
Bonds	75,000	—	—	100
Denver Gas and Electric	458,000	—	102	105
Detroit City Gas Co	5,000,000	50	—	50
" Prior Lien 5's	4,619,000	1,000	97	100¼
Detroit Gas Co., 5's	881,000	1,000	75	80
Equitable Gas & Fuel Co., Chicago, Bonds	2,000,000	1,000	—	101
Essex and Hudson Gas Co.	6,500,000	—	39	40
Fort Wayne	2,000,000	—	—	—
" Bonds	2,000,000	—	55	—
Grand Rapids Gas Light Co., 1st Mtg. 5's	1,225,000	1,000	104½	105
Hartford	750,000	25	190	200
Hudson County Gas Co., of New Jersey	10,500,000	—	112	113½
" Bonds, 5's	10,500,000	—	108	108½
Indianapolis	2,000,000	—	60	70
" Bonds, 5's	2,650,000	—	104½	105
Jackson Gas Co.	250,000	50	82	—
" 1st Mtg. 5's	290,000	1,000	97	100
Kansas City Gas Light Co., of Missouri	5,000,000	100	—	86
Bonds, 1st 5's	3,822,000	1,000	102	104
Laclede Gas Co., St. Louis	10,000,000	100	104	105
Preferred	2,500,000	100	—	98
Bonds	10,000,000	1,000	104	—
Lafayette Gas Co., Ind.	1,000,000	100	—	60
Bonds	1,000,000	1,000	60	65
Louisville	2,570,000	50	143	145
Madison Gas and Electric Co. " 1st Mtg. 6's	350,000	1,000	106	108¾
" 6 per cent. scrip, due 1910	100,000	25	60	60½
Massachusetts Gas Companies, of Boston	25,000,000	100	82⅛	83
Preferred	25,000,000	100	92¾	93
Montreal Gas Co., Canada	2,000,000	100	218	218¾
Nashville Gas Light Co.	1,000,000	100	110	—
Newark, N. J., Con. Gas Co.	6,000,000	—	56	58
Bonds, 6's	6,000,000	—	137	138
New Haven Gas Co.	2,000,000	25	200	—
Peoples Gas Lt. & Coke Co., Chicago	25,000,000	100	115½	115¾
1st Mortgage	20,100,000	1,000	—	—
2d "	2,500,000	1,000	104	—
Rochester Gas & Electric Co.	2,150,000	50	88	—
Preferred	2,150,000	50	118	—
Consolidated 5's	2,000,000	—	104½	105½
San Francisco Gas Co., Cal.	15,500,000	—	—	—
St. Joseph Gas Co.— 1st Mtg. 5's	751,000	1,000	100	102

Advertisers' Index.

New advertising, or changes in standing ads., to assure attention the issue following their reception, must be in hand on Wednesday.

GAS ENGINEERS.

Albert Ladd Colby, South Bethlehem, Pa. 1402
Bartlett-Hayward Co., Baltimore, Md. 1425
Cruse-Kemper Co., Philadelphia, Pa. 1412
Davis & Farnum Mfg. Co., Waltham, Mass. 1424
Economical Gas Apparatus Construc. Co., Toronto, Ont. 1402
Evens & Howard Firebrick Co., St. Louis, Mo. 1414
Frank D. Moses, Trenton, N. J. 1406
Fred Bredel Co., Milwaukee, Wis. 1407
Frederick J. Mayer, New York City 1405
Henry I. Lea, Chicago, Ills. 1424
H. M. Byllesby & Co., Chicago, Ills. 1424
Humphreys & Glasgow, New York City. 1424
Improved Equipment Company, New York City. 1406
Isbell-Porter Co., Newark, N. J. 1412
Kerr Murray Mfg. Co., Fort Wayne, Ind. 1417
Laclede-Christy Clay Products Co., St. Louis, Mo. 1422
Parker-Russell Mining and Mfg. Co., St. Louis, Mo. 1410
Quintard Iron Works, New York City. 1413
R. D. Wood & Co., Philadelphia, Pa. 1426
The Gas Machinery Co., Cleveland, O. 1404
The Stacey Mfg. Co., Cincinnati, O. 1427
The United Gas Improvement Co., Philadelphia, Pa. 1419
Western Gas Construction Co., Fort Wayne, Ind. 1384
William A. Baehr, Chicago, Ills. 1402

GAS WORKS APPARATUS AND CONSTRUCTION.

Bartlett-Hayward Co., Baltimore, Md. 1425
Connelly Iron Sponge & Governor Co., New York City. 1421
Continental Iron Works, Brooklyn, N. Y. 1422
Cruse-Kemper Co., Philadelphia, Pa. 1412
Davis & Farnum Mfg. Co., Waltham, Mass. 1424
Deily & Fowler Mfg. Co., Philadelphia, Pa. 1425
Economical Gas Apparatus Construc. Co., Toronto, Ont. 1402
Evens & Howard Firebrick Co., St. Louis, Mo. 1414
Fred Bredel Co., Milwaukee, Wis. 1407
Gas Engineering Co., Trenton, N. J. 1406
Humphreys & Glasgow, New York City. 1424
Improved Equipment Company, New York City. 1406
Isbell-Porter Co., New York City. 1412
Kerr Murray Mfg. Co., Fort Wayne, Ind. 1417
Laclede-Christy Clay Products Co., St. Louis, Mo. 1420
Lloyd Construction Co., Detroit, Mich. 1402
Quintard Iron Works Co., New York City. 1413
R. D. Wood & Co., Philadelphia, Pa. 1426
Riter-Conley Mfg. Co., Pittsburgh, Pa. 1411
The Gas Machinery Co., Cleveland, O. 1404
The Stacey Mfg. Co., Cincinnati, O. 1427
The United Gas Improvement Co., Philadelphia, Pa. 1419
Western Gas Construction Co., Fort Wayne, Ind. 1384

PROCESSES.

Bartlett-Hayward Co., Baltimore, Md. 1425
Economical Gas Apparatus Construc. Co., Toronto, Ont. 1402
Fred Bredel Co., Milwaukee, Wis. 1407
Humphreys & Glasgow, New York City. 1424
Improved Equipment Company, New York City. 1406
The Gas Machinery Co., Cleveland, O. 1404
The United Gas Improvement Co., Philadelphia, Pa. 1419
Western Gas Construction Co., Fort Wayne, Ind. 1384

SCRUBBERS AND CONDENSERS.

Bartlett-Hayward Co., Baltimore, Md. 1425
Continental Iron Works, Brooklyn, N. Y. 1422
Cruse-Kemper Co., Philadelphia, Pa. 1412
Davis & Farnum Mfg. Co., Waltham, Mass. 1424
Economical Gas Apparatus Construc. Co. Toronto, Ont. 1402
Evens & Howard Firebrick Co., St. Louis, Mo. 1414
Fred Bredel Co., Milwaukee, Wis. 1407
Isbell-Porter Co., Newark, N. J. 1412
Kerr Murray Mfg. Co., Fort Wayne, Ind. 1417
Quintard Iron Works, New York City. 1413
R. D. Wood & Co., Philadelphia, Pa. 1406
Riter-Conley Mfg. Co., Pittsburgh, Pa. 1411
The Gas Machinery Co., Cleveland, O. 1404
The Stacey Mfg. Co., Cincinnati, O. 1427
The United Gas Improvement Co., Philadelphia, Pa. 1419
Western Gas Construction Co., Fort Wayne, Ind. 1384

PRODUCER POWER PLANTS.

Economical Gas Apparatus Construc. Co., Toronto, Ont. 1402
R. D. Wood & Co., Philadelphia, Pa. 1426

TAR AND CARBONIC ACID EXTRACTOR.

Bartlett-Hayward Co., Baltimore, Md. 1425
Economical Gas Apparatus Construc. Co., Toronto, Ont. 1402
Fred Bredel Co., Milwaukee, Wis. 1407
Isbell-Porter Co., Newark, N. J. 1412
Kerr Murray Mfg. Co., Fort Wayne, Ind. 1417
The Gas Machinery Co., Cleveland, O. 1404
The Stacey Mfg. Co., Cincinnati, O. 1427
The United Gas Improvement Co., Philadelphia, Pa. 1419
Western Gas Construction Co., Fort Wayne, Ind. 1384

AMMONIA CONCENTRATORS.

Bartlett-Hayward Co., Baltimore, Md. 1427
Fred Bredel Co., Milwaukee, Wis. 1407
Michigan Ammonia Works, Detroit, Mich. 1402
The Gas Machinery Co., Cleveland, O. 1404
Western Gas Construction Co., Fort Wayne, Ind. 1384

GAS METERS.

American Meter Co., New York and Philadelphia. 1431
D. McDonald & Co., Albany, N. Y. 1429
Helme & McIlhenny, Philadelphia, Pa. 1431
John J. Griffin & Co., Philadelphia, Pa. 1432
Keystone Meter Co., Royersford, Pa. 1430
Maryland Meter and Mfg. Co., Baltimore, Md. 1430
Metric Metal Co., Erie, Pa. 1431
Nathaniel Tufts Meter Co., Boston, Mass. 1430
New York Improved Meter Co., New York City. 1430
Pittsburg Meter Co., East Pittsburg, Pa. 1410
Rotary Meter Co., New York City. 1403
Sprague Meter Co., Bridgeport, Conn. 1429

PREPAYMENT METERS.

American Meter Co., New York and Philadelphia. 1431
D. McDonald & Co., Albany, N. Y. 1429
Helme & McIlhenny, Philadelphia, Pa. 1431
John J. Griffin & Co., Philadelphia, Pa. 1432
Keystone Meter Co., Royersford, Pa. 1430
Nathaniel Tufts Meter Co., Boston, Mass. 1430
New York Improved Meter Co. New York City. 1430
Pittsburg Meter Co., East Pittsburg, Pa. 1410
Sprague Meter Co., Bridgeport, Conn. 1429

PREPAYMENT METER ATTACHMENTS.

New York Improved Meter Co., New York City. 1430

WATER METERS.

Pittsburg Meter Co., East Pittsburg, Pa. 1410

GAS AND WATER PIPES.

Davis & Farnum Mfg. Co., Waltham, Mass. 1424
Donaldson Iron Co., Emaus, Pa. 1416
Economical Gas Apparatus Construc. Co., Toronto, Ont. 1402
R. D. Wood & Co., Philadelphia, Pa. 1426

GAS COALS.

Berwind-White Coal Mining Co., New York and Phila. 1422
Perkins Co., New York City. 1422
Westmoreland Gas Coal Co., Philadelphia, Pa. 1423

GAS MAIN STOPPERS.

Safety Gas Main Stopper Co., New York City. 1426

MAIN AND SERVICE LAYING.

Sullivan Bros., Flushing, N. Y. 1423

GAS TAPPING MACHINES.

Geo[illegible] Light, Dayton, O.....1423
H. M[illegible]eller Manufacturing Co., Decatur, Ills.....1407

CANNEL COALS.

Por[illegible]s & Co., New York City.....1422

STOKING MACHINERY.

Fred Bredel Co., Milwaukee, Wis.....1407
G. A. Bronder, New York City.....1421
Lacl[illegible]e-Christy Clay Products Co., St. Louis, Mo.....1420
Parker-Russell Mining and Mfg. Co., St. Louis, Mo.....1410

CONVEYORS—ALL KINDS.

Bart[illegible]tt-Hayward Co., Baltimore, Md.....1425
Cruse-Kemper Co., Philadelphia, Pa.....1412
C. W. Hunt Company, New York City.....1424
Economical Gas Apparatus Construc. Co., Toronto, Ont 1402
Fred Bredel Co., Milwaukee, Wis.....1407
G. A. Bronder, New York City.....1411
Kerr Murray Mfg. Co., Fort Wayne, Ind.....1417
The Gas Machinery Co., Cleveland, O.....1404
The Stacey Mfg Co., Cincinnati, O.....1427
Western Gas Construction Co., Fort Wayne, Ind.....1384

CHARGING BARROWS & COAL WAGONS.

Davis & Farnum Mfg. Co., Waltham, Mass.....1424
Kerr Murray Mfg. Co., Fort Wayne, Ind.....1417
The Stacey Mfg. Co., Cincinnati, O.....1427

GAS ENRICHERS.

Standard Oil Co., New York City.....13[illegible]5

COKE CRUSHERS.

Bartlett-Hayward Co., Baltimore, Md.....1425
C. M. Keller, Columbus, Ind.....1423

GAS METER CONNECTIONS.

H. Mueller Manufacturing Co., Decatur, Ills.....1407

GAS COCKS.

H. Mueller Manufacturing Co., Decatur, Ills..... 1407

GAS GAUGES.

The Bristol Co., Waterbury, Conn.....1416

GAS GOVERNORS.

Chaplin-Fulton Mfg. Co., Pittsburg, Pa.....1426
Connelly Iron Sponge & Governor Co., New York City.1421
Evens & Howard Firebrick Co., St. Louis, Mo.....1414
Isbell-Porter Co., Newark, N. J.....1412
Pittsburg Meter Co., East Pittsburg, Pa.....1410
Reynolds Gas Regulator Co., Anderson, Ind.....1421

CEMENTS.

C. L. Gerould, New Castle, Pa..... 1420
Laclede-Christy Clay Products Co., St. Louis, Mo.....1420
Strassburger Bros., Chicago, Ills.....1420

RETORTS AND FIREBRICKS.

Baltimore Retort and Firebrick Co., Baltimore, Md...1420
Didier-March Co., New York City.....1405
Evens & Howard Firebrick Co., St. Louis, Mo.....1414
Fred Bredel Co., Milwaukee, Wis.....1407
Gas Bench Construction Co., St. Louis, Mo.....1413
Henry Maurer & Son, New York City.....1413
Improved Equipment Company, New York City.....1404
James Gardner, Jr., Co., Bolivar, Pa.....1422
J. H. Gautier & Co., Jersey City, N. J.....1420
Laclede-Christy Clay Products Co., St. Louis, Mo.....1420
Missouri Firebrick Co., St. Louis, Mo.....1420
Parker-Russell Mining and Mfg. Co., St. Louis, Mo....1410

INCLINED RETORTS.

Baltimore Retort and Firebrick Co., Baltimore, Md...1420
Didier-March Co., New York City 1405
Evens & Howard Firebrick Co., St. Louis, Mo.....1414
Fred Bredel Co., Milwaukee, Wis.....1407
Gas Bench Construction Co., St. Louis, Mo.....1413
Improved Equipment Company, New York City.....1406
Laclede-Christy Clay Products Co., St. Louis, Mo.....1420
Parker-Russell Mining and Mfg. Co., St. Louis, Mo...1410

VERTICAL S'S.

Connelly Iron Sponge & Gov. Co. (Drake's [Eng.] System) 1421
Didier-March Co., New York City.....1405
Evens & Howard Firebrick Co , St. Louis, Mo.....1414
Fred Bredel Co., Milwaukee, Wis.....1407
Gas Bench Construction Co., St. Louis, Mo.....1423
Improved Equipment Company, New York City.....1406
Laclede-Christy Clay Products Co., St. Louis, Mo.....1420
Parker-Russell Mining and Mfg. Co., St. Louis, Mo. ..1410

REGENERATIVE FURNACES.

Baltimore Retort and Firebrick Co., Baltimore, Md..1420
Bartlett, Hayward & Co., Baltimore, Md.....1425
Didier-March Co., New York City.....1405
Evens & Howard Firebrick Co., St. Louis, Mo.....1414
Fred Bredel Co., Milwaukee, Wis.....1407
Gas Bench Construction Co., St. Louis, Mo.....1423
Improved Equipment Company, New York City.....1406
J. H. Gautier & Co., Jersey City, N. J.....1420
Laclede-Christy Clay Products Co., St. Louis, Mo.....1420
Missouri Firebrick Co., St. Louis, Mo..... 1420
Parker-Russell Mining and Mfg. Co., St. Louis, Mo...1410

SELF-SEALING MOUTHPIECE DOORS.

Bartlett-Hayward Co., Baltimore, Md.....1425
Continental Iron Works, Brooklyn, N. Y.....1422
Davis & Farnum Mfg. Co., Waltham, Mass.....1424
Fred Bredel Co., Milwaukee, Wis.....1407
Isbell-Porter Co., Newark, N. J.....1422
Improved Equipment Company, New York City.....1404
Kerr Murray Mfg. Co., Fort Wayne, Ind.....1417
Parker-Russell Mining and Mfg. Co., St. Louis, Mo.....1410
Quintard Iron Works, New York City..... 1423
R. D. Wood & Co., Philadelphia, Pa.....1426
The Gas Machinery Co., Cleveland, O.....1404
The Stacey Mfg. Co., Cincinnati, O.....1427
Western Gas Construction Co., Fort Wayne, Ind.....1384

INCANDESCENT GAS LAMPS.

General Gas Light Co., Kalamazoo, Mich.....1419
Welsbach Company, Gloucester, N. J.....1418

BURNERS.

Wm. M. Crane Co., New York City.....1416

STREET LAMPS.

Thos. T. W. Miner, New York City.....1402
Welsbach Street Lighting Co., New York and Phila..1416

GAS BLAST FURNACES.

American Gas Furnace Co., New York City.....1408

PURIFIERS.

Bartlett-Hayward & Co., Baltimore, Md.....1425
Connelly Iron Sponge & Governor Co., New York City .1421
Cruse-Kemper Co., Philadelphia, Pa.....1412
Davis & Farnum Mfg. Co., Waltham, Mass.....1424
Evens & Howard Firebrick Co., St. Louis, Mo.....1414
Isbell-Porter Co., Newark, N. J.....1412
Kerr Murray Mfg. Co., Fort Wayne, Ind..... 1417
Quintard Iron Works, New York City.....1413
R. D. Wood & Co., Philadelphia, Pa.....1426
The Stacey Mfg. Co., Cincinnati, O 1427
The United Gas Improvement Co., Philadelphia, Pa...1419
Western Gas Construction Co., Fort Wayne, Ind.....1384

VALVES.

Bartlett-Hayward & Co., Baltimore, Md.....1425
Continental Iron Works, Brookln, N. Y.....1422
Davis & Farnum Mfg. Co., Waltham, Mass.....1424
Economical Gas Apparatus Construc.Co., Toronto, Ont.1402
Isbell-Porter Co., Newark, N. J.....1412
Kerr Murray Mfg. Co., Fort Wayne, Ind.....1417
Ludlow Valve Manufacturing Co., Troy, N. Y.....1413
R. D. Wood & Co., Philadelphia, Pa.....1426
The Gas Machinery Co., Cleveland, O.....1404
The P. H. & F. M. Roots Co., Connersville, Ind..... 1415
The Stacey Mfg. Co., Cincinnati, O.....1427
Western Gas Construction Co., Fort Wayne, Ind.....1384

(*Continued on page 1402.*)

SPECIAL MEETING.

OFFICE OF THE UNITED GAS IMPROVEMENT CO.,
N. W. CORNER BROAD AND ARCH STS.,
PHILADELPHIA, December 9, 1909.

A Special Meeting of the Stockholders of The United Gas Improvement Company will be held at the office of the Company, Northwest Corner of BROAD AND ARCH STREETS, PHILADELPHIA, on Wednesday, Feb. 9, 1910, at 12 o'clock, noon, for the purpose of acting upon the subject of a proposed increase in the authorized capital stock of the Company from 1,009,467 shares, of the par value of $50 each, to 1,110,414 shares, of the par value of $50 each.

By order of the Board of Directors.

W. F. DOUTHIRT, Secretary.

The stock transfer books will be closed from 3 P.M., Jan. 28, 1910, until 10 A.M., Feb. 10, 1910.

1801-9

DIVIDEND NOTICE.

OFFICE OF THE UNITED GAS IMPROVEMENT CO.,
N. W. CORNER BROAD AND ARCH STS.,
PHILADELPHIA, PA., Dec. 8, 1909.

The Directors have this day declared a quarterly dividend of 2 per cent. (one dollar per share), payable Jan. 15th, 1910, to stockholders of record at the close of business, Dec. 31, 1909. Checks will be mailed.

1801-5 LEWIS LILLIE, Treasurer.

Situation Wanted.

A first-class prover and repairer of meters, having 10 years' experience in all branches of the meter business, would like to take charge of repairs with a gas company, situated anywhere (home or abroad), requiring the services of a thorough workman along the lines indicated. Good references.

1803-2. Address, "REPAIRER," care this Journal.

Position Wanted

By man 30 years old, now employed as manager of small plant in Wisconsin. Have had 12 years' experience in bookkeeping and accounting; 6 years in the gas business. Willing to go anywhere as head bookkeeper, assistant manager or superintendent in town of 25,000 or over after January 1st, 1910.

1803-3 Address, "MIDDLE," care this Journal.

Position Wanted.

Good Distribution and New Business Man

Will be open for position after first of the year. Address, "A-1,"

1803-1 Care this Journal

Wanted at Once,

Experienced Gas Solicitor, Capable of Pushing Gas Arc Department.

Give references, experience, and salary desired. Address, J. KEILLOR,

1802-2 Mgr. Hamilton Gas Light Co., Hamilton, Ont.

Wanted, by Jan. 1-15,

A Working Gas Superintendent

For a small high pressure gas plant in New Jersey. Wages, $1,000. Give reference and experience. Address, "M. P.,"

1803-2 Care this Journal.

WANTED,

DISTRIBUTION FOREMAN.

Must be competent to take charge of all distribution work, including main laying and up to arc lamp and small burner maintenance. Salary, $90 per month. Southern city of 25,000 inhabitants.

1803-2 Address, "P.," care this Journal.

WANTED,

An All-Round Water Gas Man for Small Plant in Northwest.

One who can take complete charge of gas making and distribution work. Only a first-class man need apply. Give full information about yourself, with references and salary expected, in first letter. Address, "X.,"

1803-1 Care this Journal.

FOR SALE,

One Set of "King's Treatise on Coal Gas."

Three volumes. Edition 1882. Price, $100.

Address,
AMERICAN GAS LIGHT JOURNAL,
42 PINE STREET, NEW YORK CITY.

FOR SALE,

Four-foot U. G. I. Water Gas Machine.
Two Steel Purifiers, 6 feet x 8 feet x 10 feet.

Both in excellent condition. For particulars, Address, "L. V.,"

1801-3 Care this Journal.

FOR SALE,

One set of 4 purifying boxes 12 feet 8 inches by 10 feet 9 inches by 3 feet, in good condition, with centerseal and 10-inch connections. Also one American 8-foot station meter.

1771-tf YORK GAS CO., York, Pa.

FOR SALE,

Second-hand gas apparatus in good order. Selling because outgrown. Ready for immediate delivery.

One 6-foot Tufts' Station Meter, Hinman Drum, 10-inch connections.
One 5-foot Tufts' Station Meter, Hinman Drum, 8-inch connections.
One Standard Washer Scrubber and Standard, with inlet and outlet valves, 10-inch connections.
One No. 3 P. & A. Tar Extractor, 8-inch connections.
Two 3-blade McKenzie Exhausters, 8-inch connections.

NEW BEDFORD GAS AND EDISON LIGHT COMPANY,

1798-tf NEW BEDFORD, MASS.

(Concluded from page 1401.)

PURIFYING MATERIALS.

Connelly Iron Sponge & Governor Co., New York City1421
F. Behrend, New York City.....1416
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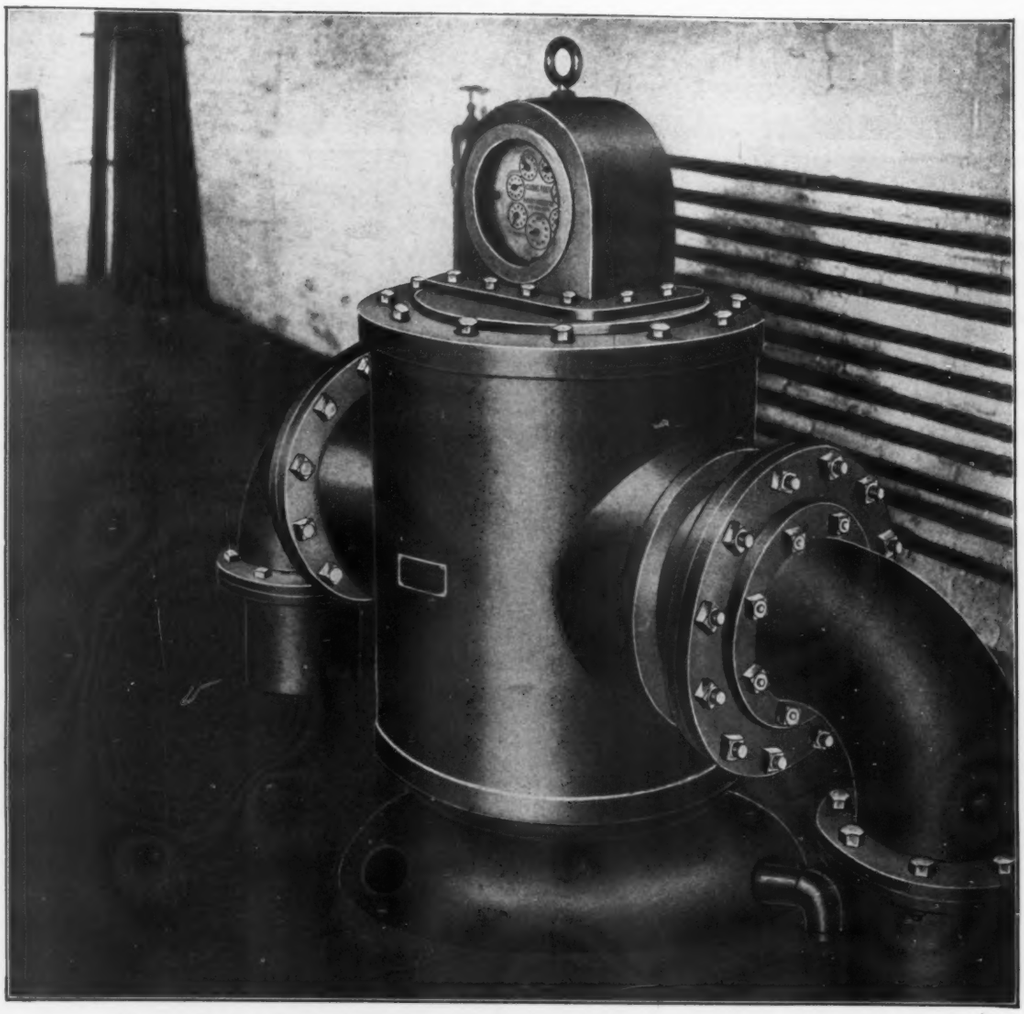

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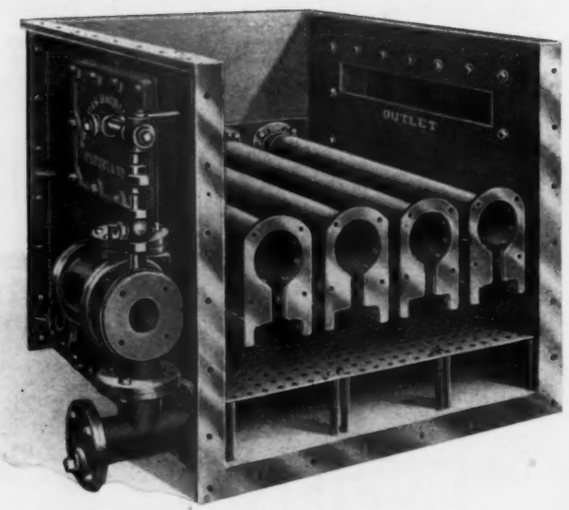

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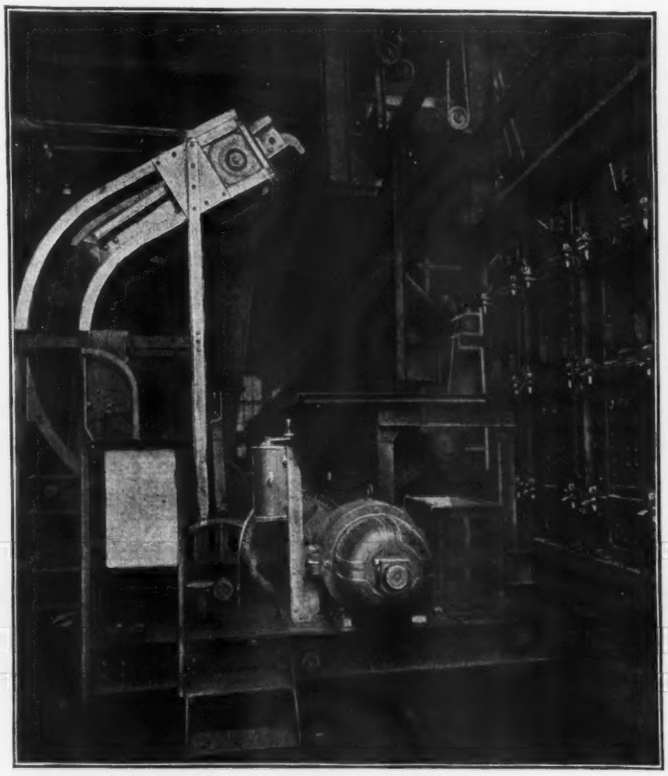

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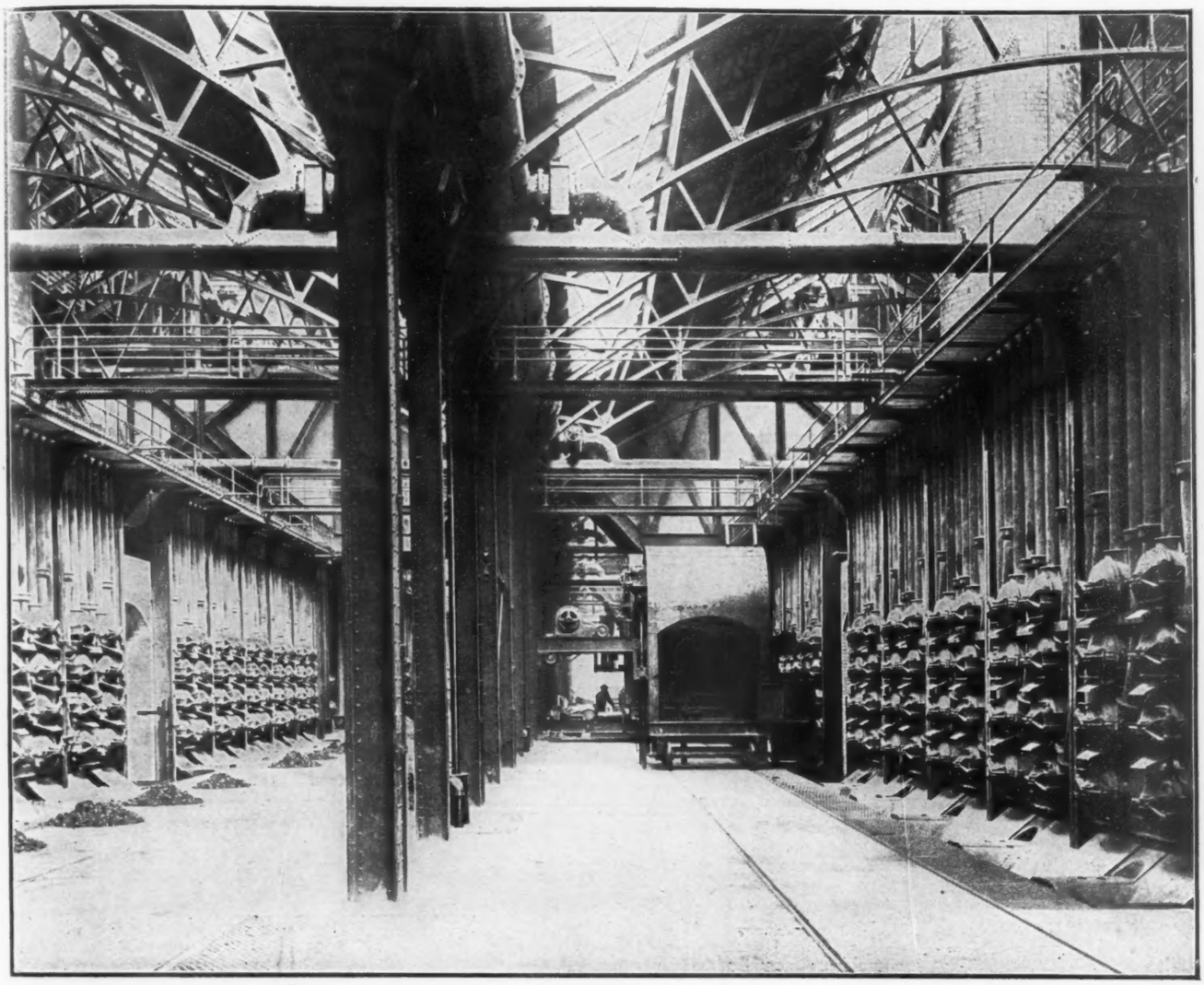

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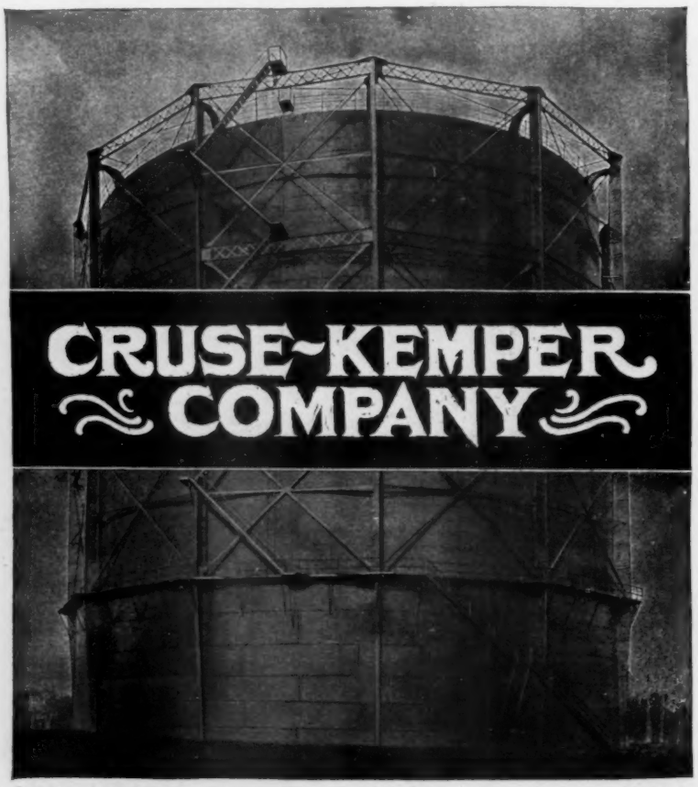

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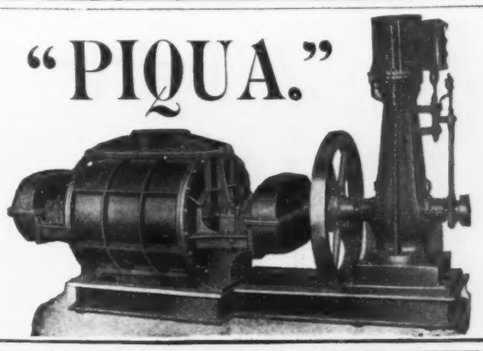

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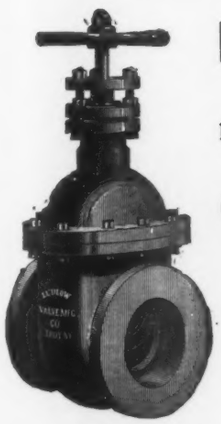

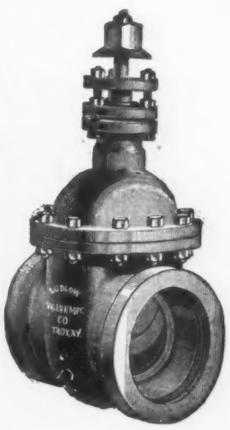

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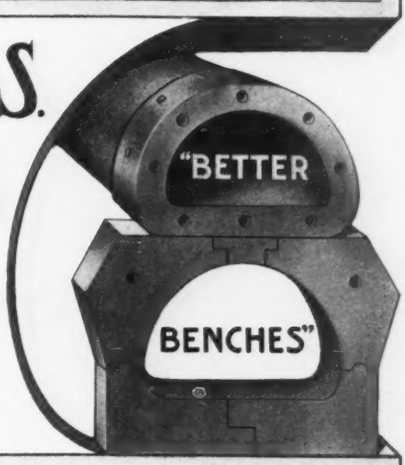

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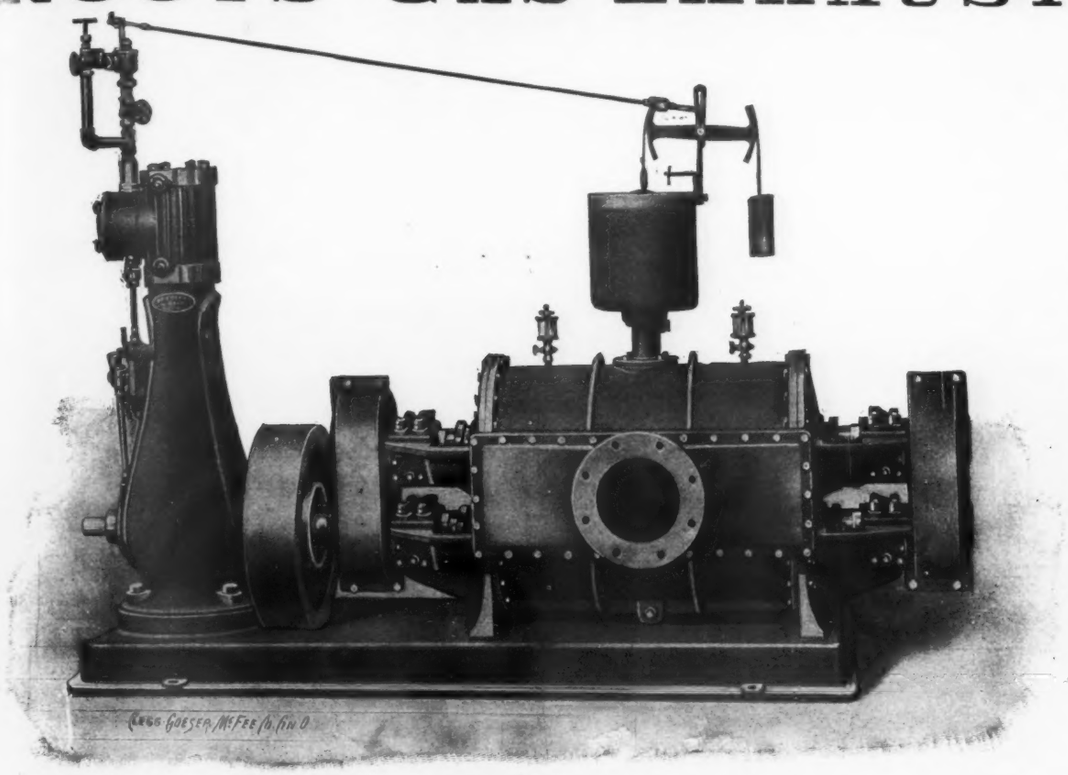

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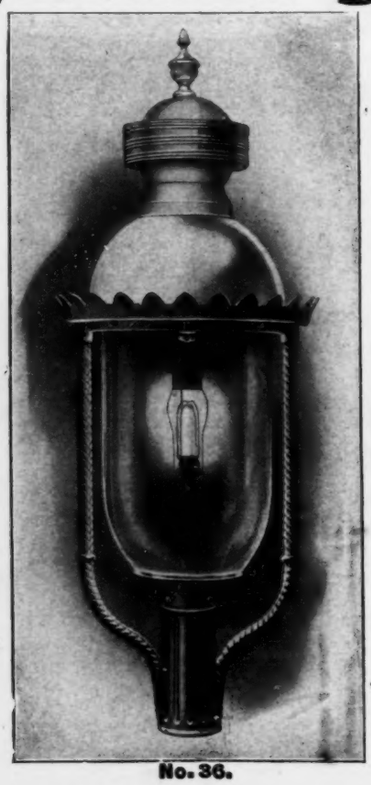

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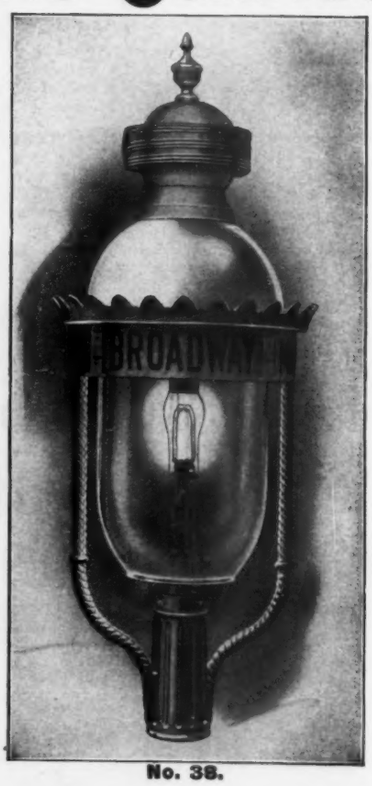

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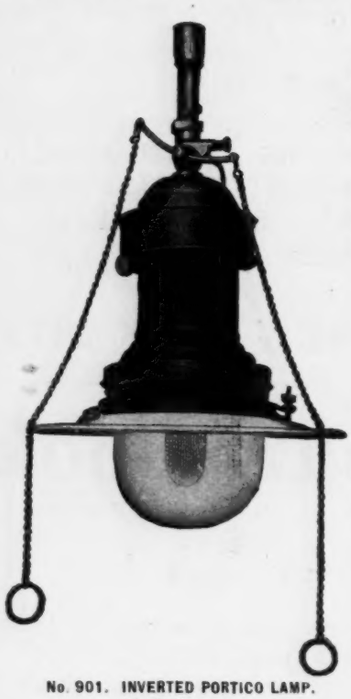

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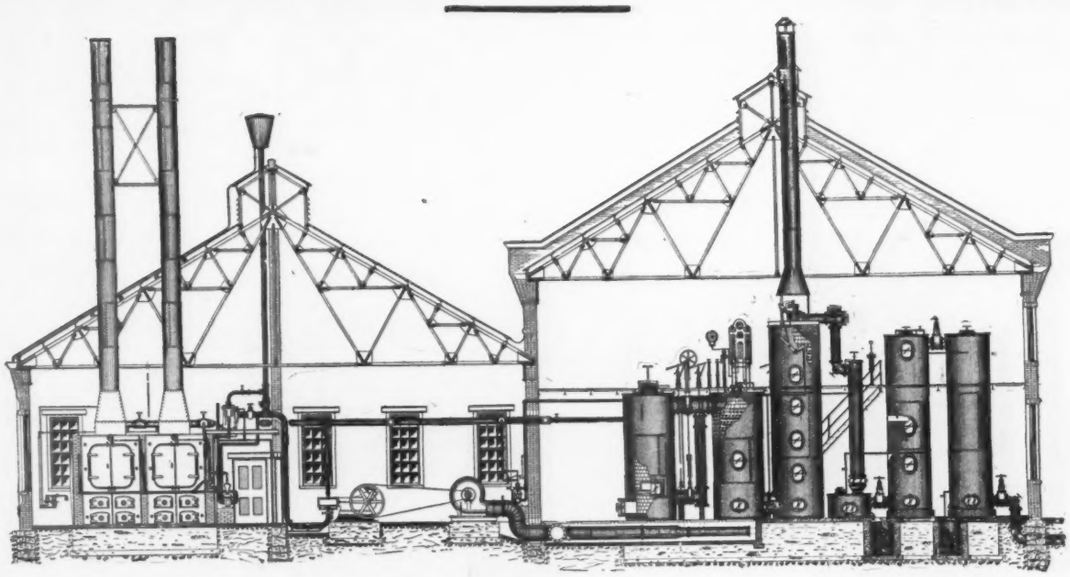

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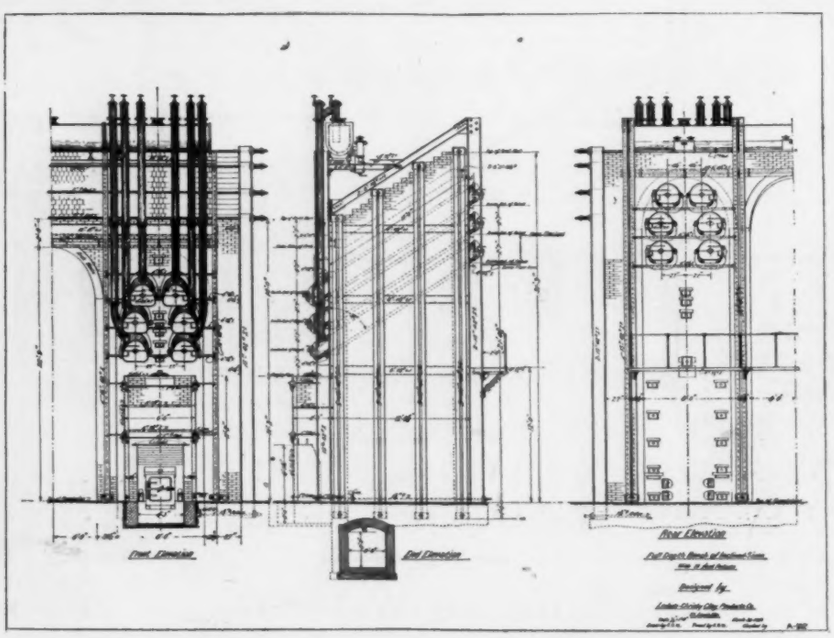

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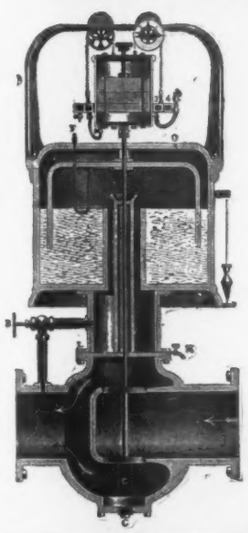

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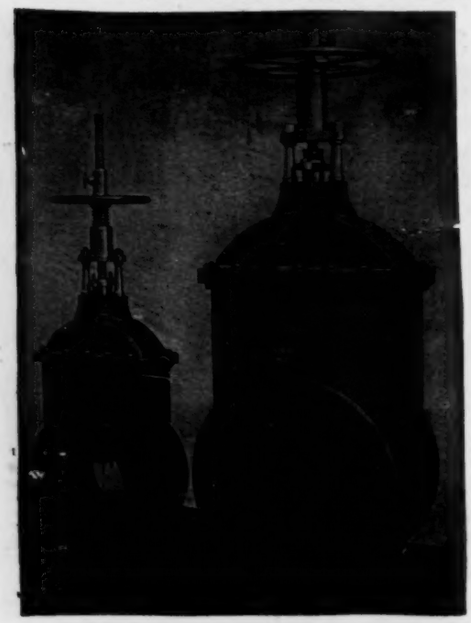

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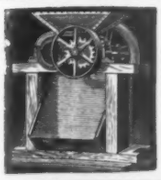

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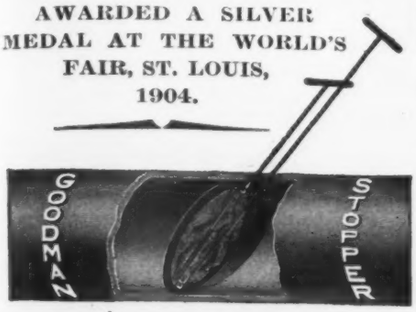

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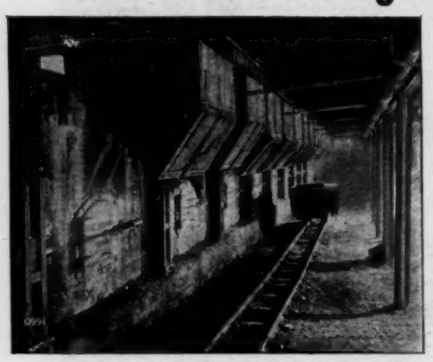

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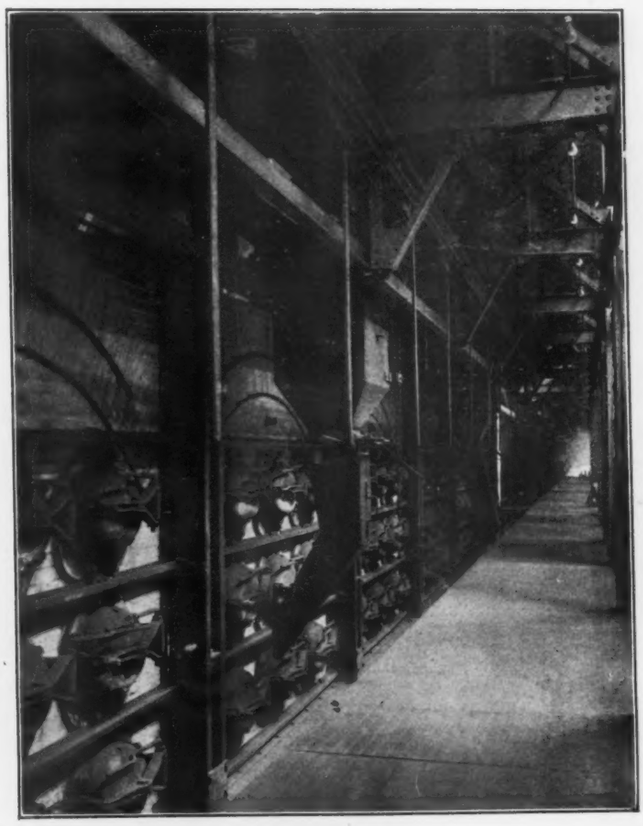

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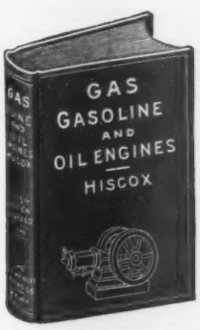

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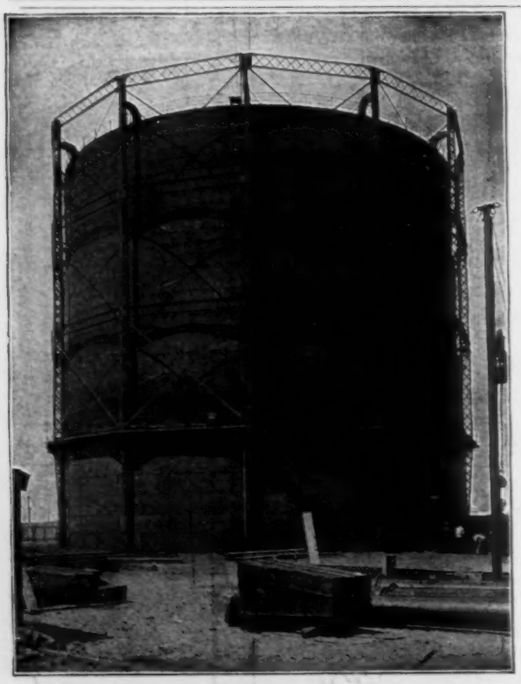

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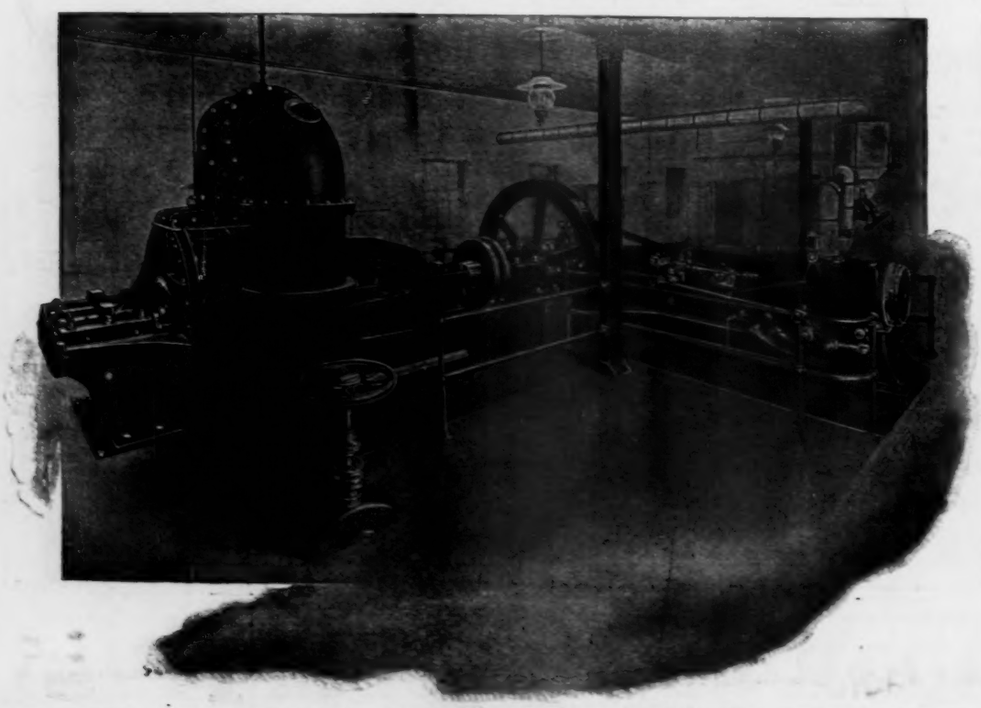

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